



PHD

## Impression formation on social network sites during university transition

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Impression formation on social network sites during university transition

**Impression formation on social network sites during university transition**

James Doodson

A thesis submitted for the degree of Doctor of Philosophy

University of Bath

Department of Psychology

January 2017

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## Impression formation on social network sites during university transition

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### **Abstract**

Most research investigating impression formation during early stages of a relationship on social network sites adopts unrealistic, ecologically invalid social scenarios. This thesis used an ecologically valid social scenario to improve understanding of impression formation during the early stages of a relationship on social network sites. Three studies investigated how students get to know each other on social network sites in the weeks before starting university.

A focus group study, a questionnaire study and an experiment demonstrated that incoming undergraduate students form impressions about groups of people (e.g. a group of housemates) and specific individuals (e.g. a housemate) during university transition. The studies highlighted that it is too simplistic to suggest that impression formation about a group of people is different from impression formation about a specific individual. Instead, the coherence of the social target, the nature of the affiliation with that social target, and the strategies used to get to know that social target on social network sites influence how confident students are in their impressions of each other during university transition. Explanations are proposed that, if substantiated, would require expansion of the Hamilton and Sherman's and cues-filtered in theories of impression formation.

The studies highlighted that impression formation and the influence of those three factors can partially explain the intensity of students' worries about the academic and social aspects of their future university experience. The findings are practically applied as guidance for university and pastoral support services and further research is proposed to test the tentative explanations.

## **Chapter 1 - Introduction**

Social network sites are networked communication platforms within which users create unique profile pages consisting of user- and system-generated content, and interact with streams of content contributed by their friends and acquaintances (Ellison & Vitak, 2013). Examples of social network sites include Facebook, Twitter and Google+. At the time of writing, Facebook has been the largest social network site globally and within the United Kingdom for several years as measured by the number of registered users, their activity and their login count (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015; OfCom, 2014).

Social network sites offer users opportunities to co-construct their identities with their friends and acquaintances (Gilpin, 2010; Pempek, Yermolayeva & Calvert, 2009; Van Dijck, 2013) and for others to form impressions about those identities (Donath, 2007; Lampe, Ellison & Steinfield, 2007). Users can construct their identities by uploading photographs or videos of themselves and their friends (Mendelson & Papacharissi, 2010; Zhao & Jiang, 2011), linking to content that they find interesting (Basak, & Calisir, 2015), writing updates about themselves and their thoughts (Lee, 2011), indicating that they have been to a location (Wang, 2013; Wang & Stefanone, 2013), and listing their preferences (Zhao, Grasmuck & Martin, 2008). Users' friends and acquaintances can contribute to the construction of their identity by tagging them in photographs or status updates, sharing content on their profile page, commenting on the content that is shared on their profile page, or being visibly associated with them (Walther, Van Der Heide, Hamel & Shulman, 2009). Users can also create their identities by sending private messages to others, joining groups and events of interest to them, and interacting with others within those groups (Madge, Meek,

Wellens & Hooley, 2009).

The opportunities and constraints afforded to people constructing their identities on social network sites meaningfully differ from those afforded in other environments (Ellison & Vitak, 2015). During face-to-face encounters, the sum of a person's past actions and experiences is not readily available for others to form impressions about (Clarke & Brennan, 1991). Impressions are primarily formed based on what happens during face-to-face interaction. In contrast, the content on social network sites remains generally persistent over time (boyd, 2010; Treem & Leonardi, 2012). Profile pages on social network sites enable simultaneous access to a vast range of content about a person's past behaviour and experiences. The vast array of content that a profile page can contain ranges from fluctuations in a person's daily mood to their reactions to major life-changing events. The content can also span multiple phases of a person's life from adolescence into adulthood including changes in employment, education and relationships. Given the vast content available about a person, social network sites are saturated with rich identity cues from which people could form impressions. Existing research on impression formation was not developed for people forming impressions on such a substantial set of rich cues, and instead was developed for face-to-face encounters (e.g. Fiske & Neuberg, 1990) or encounters involving instant messaging (e.g. Walther, 1996; Walther & Parks, 2002). Consequently, social network sites offer a useful environment in which to further develop understanding about impression formation within a different set of boundaries that existing theory was not equipped to handle.

Social network sites and online environments more generally can afford individuals a greater level of control and flexibility over the identities that they

present to others compared to face-to-face encounters (Fullwood, 2015; Walther, 1996). When face-to-face, individuals expend significant cognitive resources monitoring their behaviour during the real-time, fast-paced nature of back-and-forth synchronous communication (Walther, 2007). Comparatively, communication on social network sites is asynchronous insofar that users can craft their content over time with delays instead of responding instantly in real-time (boyd, 2010; Walther, 2007).

Coupled with features that allow users to more easily modify their online content after sharing, the slower pace of asynchronous communication in online environments enables users to more strategically plan, construct, monitor, modify and censor the identity that they present compared to face-to-face encounters (boyd, 2010; Marder, Joinson, Shankar, & Houghton, 2016; Walther, 2007). As users can be physically isolated from one another, online environments also allow individuals to more effectively mask aspects of their identity including their physical appearance, issues of apparent stigma (e.g. stuttering) and shyness or social anxiety that they find difficult and desire to mask face-to-face (Fullwood, 2015; McKenna, Green & Gleason, 2002). These affordances of persistence, asynchronicity, editability, and physical isolation offered by social network sites and some other online environments provide a unique environment to explore both identity construction and subsequent impression formation (boyd, 2010).

Social network sites are used to keep up-to-date and communicate with existing friends (Joinson, 2008; Subrahmanyam, Reich, Waechter & Espinoza, 2008). However, people also use social network sites to get to know others that they have never previously met either face-to-face or in any capacity (Jin, 2015;

Joinson, 2008; Lewis, Kaufman & Christaki, 2008; Lewis & West, 2008; Moore & Craig, 2010; Raacke & Bonds-Raacke, 2008). The substantial content available about a person on the websites can be potentially very useful when forming initial impressions. When using social network sites to get to know others for the first time, people form impressions that are more reliant on the content available on those websites than in more established relationships where people can rely on many previous encounters which could have been face-to-face or elsewhere (Courtois, Anissa & Vanwynsberghe, 2012).

Research, identified in the literature review in Chapter 2, has explored how people form impressions about others during the early stages of a relationship on social network sites (e.g. Hong, Tandoc, Kim, Kim & Wise, 2012; Walther, Van Der Heide, Hamel & Shulman, 2009). As discussed in the literature review, most research has failed to adopt a realistic scenario that closely represents how people get to know each other for the first time on the websites. Instead, the research tends to use artificial and ecologically invalid scenarios where participants have few worries, no context and little motivation for getting to know the people that the researchers have introduced them to on a social network site.

Given the unrepresentative nature of previous research and the opportunity that social network sites offer for developing impression formation theory, this thesis adopted a realistic scenario **to improve understanding of impression formation during early stages of a relationship on social network sites**. The realistic, naturally occurring scenario involved undergraduate students first getting to know each other on social network sites during the weeks prior to starting university.

In the weeks before starting university, incoming undergraduate students are already aware that they have been accepted to university but have yet to have moved to their university campus and instead tend to live at their family home (Chow & Healey, 2008; Clark & Hall, 2010). Prior to university, students are often geographically spread and have not attended the same schools and colleges (Higher Education Statistics Agency, 2015). Consequently, incoming students are unlikely to meet any of their new housemates and coursemates face-to-face or otherwise prior to arriving at university for induction week at the beginning of their first semester.

Social network sites offer an opportunity for incoming undergraduate students to seek out and get to know their new housemates and coursemates in the weeks prior to starting university. The websites allow students to join groups on the websites set up by their university for incoming students due to be studying on a particular course or living in a specific accommodation block (Alemán & Wartman, 2008). Having joined those groups, the students can identify, converse and form impressions of their new coursemates and housemates before meeting face-to-face (Madge, Meek, Wellens & Hooley, 2009).

Undergraduate students already use social network sites to identify, observe and interact with their future coursemates and housemates prior to the start of university (Alemán & Wartman, 2008; DeAndrea, Ellison, LaRose, Steinfield & Fiore, 2012; Gray, Vitak, Easton & Ellison, 2013; Madge, Meek, Wellens & Hooley, 2009). However, no researcher has explored impression formation in the scenario. Instead, researchers have focused on describing students' activities during those weeks. Consequently, the scenario is one that

does not need to be artificially manufactured and is novel scenario that has not been studied before in the context of impression formation.

The scenario was considered appropriate by tackling problems identified in Chapter 2 as being prominent in research that has investigated impression formation on social network sites. First, people expend little effort getting to know somebody with whom there is little expectation of meaningful future interaction (Berger & Bradac, 1982; Berger & Douglas, 1981; Douglas, 1985, 1987; Kellermann, 1986; Sunnafrank, 1986). In most research exploring impression formation on social network sites, participants forming impressions have no expectation of meeting the people about whom they are forming impressions. A university transition scenario rectifies this problem because incoming undergraduate students meeting on social network sites expect to have meaningful encounters once having arrived at university.

Second, the researchers exploring impressions on social network sites often choose uncommon, artificial ecologically invalid scenarios without any role for a person's worries and emotions. Such scenarios are artificial as people experience worries and emotions daily, which overlap with the periods within which they form impressions of others. A university transition scenario deals with the problem because students experience worries in the weeks prior to starting university including if they will succeed academically at university and whether they will be liked or disliked by their peers (Brooks, 2005; Clark & Hall, 2010; (DeAndrea, Ellison, LaRose, Steinfield & Fiore, 2012). Given the prominence of worries and the expectation of future meaningful interactions, the undergraduate transition scenario more closely represents impression formation than the artificial, ecologically invalid scenarios whereby participants have few worries

and little context or motivation to get to know others.

This thesis reports on three studies each of which used the university transition scenario to improve understanding of impression formation during early stages of a relationship on social network sites. Chapter 3 reports seven focus groups which explored the types of impressions that students formed about each other on social network sites in the weeks prior to starting university (Study 1). Students were sceptical and lacked confidence in the impressions that they formed about each other solely from encounters on the websites. Students also formed impressions about both *specific individuals* and *a group of people*. These impressions included a specific coursemate, a group of their housemates and a group of the general type of people at their university. Second, students formed impressions that integrated their worries about the academic and social aspects of their future university experiences. Given limited research, further investigation was required to understand the scepticism and worries that students had when describing their impressions about a group of people at their university.

In Chapter 4, a questionnaire study investigated how 233 first year undergraduate students formed impressions about groups of people on social network sites in the weeks prior to starting university (Study 2). The study investigated the strategies that students used when first getting to know a group of people at their university on social network sites, what the relationship was between those strategies and how confident the students were in their impressions about that group, and whether students' confidence in their impressions from those strategies can explain how worried students were in their impressions. Confirmatory factor analysis indicated that students used four strategies when trying to get to know a group of people at their university. Those



strategies were the public passive, the private passive, the interactive and the active strategies. Furthering the investigation of students' scepticism discussed in Chapter 3, structural equation modelling demonstrated that the extent that students were confident about their impressions about the general type of people at their university was related to how frequently they used those four strategies when getting to know to know them on social network sites. However, the nature of the relationship with how confident students were about their impressions was dependent on which strategy that students used. The extent that students were worried about the academic and social aspects of university was also related to how frequently they used four strategies to get to know each other on social network sites. Mediation analysis indicated that the relationship was partially accounted for by how confident students were about the general type of people at their university. Comparisons with previous research indicated that further research was required to understand whether the findings could be applied how students got to know a specific individual in the weeks prior to starting university.

In Chapter 5, an online experiment investigated whether the relationship between the strategies that 448 incoming undergraduate students' used to get to know others on social network sites and how confident they were in their impressions depended on the impression being about a specific individual or a group of people (Study 3). The study also explored whether students' confidence in their impressions plays any role in how worried they are about university, and whether that role was the same for impression formation about a group of people and a specific individual. Structural equation modelling indicated the extent that students again used four strategies when getting to know other people from their

future university on social network sites was linked to how confident those students were about their impressions of those people. However, the link was dependent the coherence and affiliation of the social target about whom the students formed impressions, and the strategies that the students used to get to know those social targets. The roles of coherence, affiliation and strategies also emerged when exploring the relationships between the strategies that students used when getting to know others on social network sites and how worried they were about the academic and social aspects of university. Tentative explanations are proposed including how existing theory requires may require amendment.

In Chapter 6, a general discussion of the findings from the three studies highlighted how impression formation theory could account for the interaction between the social target and the strategies that people use when getting to know those targets. Practical applications are discussed including how universities and the designers of social network sites could promote the wellbeing of incoming students. Future research was outlined to explore the validity of theoretical suggestions that were proposed to explain the findings.

## **Chapter 2 - Literature Review on information seeking and impression formation**

This chapter includes a description of the features, purposes and prevalence of social network sites followed by a literature review identifying how people get to know each other using social network sites. The literature review explored the methods that people use to get to know each other, and then the factors that influence impressions formation on social network sites, including the features of social network sites.

### **What are the features of social network sites?**

Social network sites are Internet-based networked communication platforms within which users create unique profile pages consisting of user- and system-generated content, and interact with streams of user-generated content contributed by their friends and acquaintances who also use the websites (Ellison & Vitak, 2013). The following subsection describes the prevalence of the websites, outlining common features and discussing those features in the context of common uses for the websites.

There are various social network sites available. Current examples include Facebook, Weibo, Twitter and Google+ with older websites having been retired (e.g. Hyves; MySpace). The websites have penetrated online society with reports that up to 80% of Internet users have an account on least one social network site (e.g. Duggan et al., 2015; Panek, Nardis & Konrath, 2013).

Facebook is the dominant social network site of choice amongst adults and teenagers in the United Kingdom (OfCom, 2012; OfCom, 2015) and several

other countries (Bicen & Cavus, 2011; Duggan & Brenner, 2013; Duggan, Ellison, Lampe, Lenhart, & Madden, 2015; Lenhart, Purcell, Smith & Zickuhr, 2010) although websites sites, including LinkedIn and Twitter, are increasingly popular (Bright, Kleiser & Grau, 2015; Jin, Chen, Wang & Vasilakos, 2013; OfCom, 2015). Recent estimates suggest that there are approximately 1.28 billion active Facebook accounts compared to approximately 241,000 active Twitter accounts (Petrocchi, Asnaani, Martinez, Nadkarni & Hofmann, 2015).

Teenagers and young adults are habitual users of social network sites, having embraced the technology in large numbers and integrated these websites into their daily life. Most teenagers and young adults have at least one account on a social network site, with estimates ranging between 73% and 93% depending on the criteria for distinguishing teenagers (e.g. 13 to 17 years; 16 to 21 years) from young adults (e.g. 17 to 29 years; 18 to 24 years; Duggan & Brenner, 2013; Lenhart, Purcell, Smith & Zickuhr, 2010; OfCom, 2012; 2014; 2015). In the United Kingdom, between 69% and 83% of young adults access a social network site more than once per day (OfCom, 2012; 2014). Most undergraduate students, the majority of whom are teenagers and young adults, begin university with an account on at least one social network site, (Alemán & Wartman, 2008; DeAndrea, Ellison, LaRose, Steinfield & Fiore, 2012; Gray, Vitak, Easton & Ellison, 2013; Yang & Brown, 2013) and remain users throughout their undergraduate course (Jacobsen & Forste, 2011; Junco, 2012a; 2012b).

Teenagers and adults use social network sites for various purposes, including to support existing social relationships. Friendship groups interact regularly on the websites by sharing content that supplements regular contact face-to-face and using other technology-mediated environments, including text

messaging, instant messaging, video conferencing and telephone (Ellison, Steinfield & Lampe, 2011; Park, Kee & Valenzuela, 2009; Wohn, Lampe, Vitak & Ellison, 2011; Yousefnezhad, Nagy & Asokan, 2016).

Content shared on social network sites tends to be centrally presented on a customisable webpage known as a 'profile page' and dedicated to content involving a specific user. A range of content can be shared on profile pages, although users most commonly share photographs and written updates. (Hampton, Goulet, Marlow & Rainie, 2012; Pempek, Yermolayeva & Calvert, 2009). On profile pages, users can share photographs depicting almost any subject, including events they attended, locations they visited, and activities they had taken part in (Botha & Reyneke, 2013; Kolek & Saunders, 2008; Malik, Dhir & Nieminen, 2016; Mendelson & Papacharissi, 2010; Munar & Jacobsen, 2014; Zhao, Grasmuck & Martin, 2008).

Users can choose a single photograph to prominently greet anybody who visits their profile page, identify them as the profile owner and differentiate them from others (Hall, West & McIntyre, 2012; Watson, Smith & Driver, 2006; Whitty, Doodson, Creese & Hodges, 2014). 'Profile photographs', sometimes known as a 'profile images' or 'profile pictures', are similar to avatars in chatrooms and instant messaging (Kang & Yang, 2006; Nowak, 2013), virtual or gaming worlds (Ducheneaut, Wen, Yee & Wadley, 2009; Vasalou & Joinson, 2009) and dating websites (Hancock & Toma, 2009) insofar that the photograph appears with the user's name alongside all content and interactions involving the user in the environment.

Profile photographs can visually depict almost any content although norms have emerged. On Facebook, profile photographs tend depict the profile

owner by themselves or with a romantic partner or family member adopting a static pose alongside a scenic backdrop, a memorable event or an enjoyable activity (Hum et al., 2011; Strano, 2008). Users can change their profile photographs at will although often after finding a more aesthetically pleasing photograph, appearance change, important life events (e.g. a wedding, graduation or other celebration), a change in life circumstances (e.g. removing a photograph containing a romantic partner after a breakup) or a desire to keep their profile recent (Strano, 2008; Whitty, et al., 2014).

Users can also share written content on their profile pages (Carr, Schrok & Dauterman, 2012; Lenhart, Purcell, Smith & Zickuhr, 2010; Marwick, 2013). The written updates, commonly referred to as ‘wall posts’ or ‘status updates’, can range in length from several paragraphs to single words and often detail profile owner’s current mood, opinions on a political event or a linked news article, expressions of gratitude, and announcements of events (Barash, Ducheneaut, Isaacs & Bellotti, 2010; Lee & Ma, 2012; Morris, Teevan & Panovich, 2010; Utz, 2011; 2015; Wang, Burke & Kraut, 2013; Winter et al., 2014). Users can indicate whether written and photographic content took place at location such as at a tourist or a business location (Chang & Sun, 2011; Kim, 2016; Liu, Sui, Kang & Gao, 2014; Wang, 2013; Wang & Stefanone, 2013).

Users can establish virtual friendship connections with each other which are formal acknowledgements of an association between two people (Rashtian, Boshmaf, Jaferian & Beznosov, 2014; Sibona & Walczak, 2011; Utz, 2010). Establishing the virtual friendship connection is commonly referred to as ‘friending’ or ‘adding’ each other. Friendship connections are often established between friends or family whose relationship was established other outside of

website however users can also establish friendship connections without knowing or having met each other (Ellison, Steinfeld & Lampe, 2011; Patil, 2012; Rashtian et al., 2014). For example, users can add each other after anticipating a likely future relationship such as living together in shared accommodation or studying the same course (Alemán & Wartman, 2008)

Friendship connections provide benefits for the users involved in the connection including sending each other private messages, viewing restricted content on each other's profile pages, and tagging each other in content such as photographs and wall posts (boyd & Marwick, 2011; Christofides, Muise & Desmarais, 2009; Lampinen, Lehtinen, Lehmuskallio, & Tamminen, 2011; Vitak, Lampe, Gray & Ellison, 2012). Users can terminate friendship connections which often occurs after unwanted posting by the other person, trust breaches, or relationship dissolution outside of the social network site (Bevan, Pfyl & Barclay, 2012; Sibona & Walczak, 2011; 2014; Peña & Brody, 2014)

Profile pages are a central repository for users to keep their friendship connections, such as their friends and family, up-to-date with developments in their lives irrespective of geographic location or how often they interact elsewhere (Shklovski, Barkhuus, Bornoe & Kaye, 2015; Quan-Haase & Young, 2010; Whiting & Williams, 2013). The centralisation of content on a profile page differs from that of other environments, such as email and chatrooms, where a user's content is not centralised on a single page but may be distributed for viewing across multiple areas. For example, a user's emails may appear within several email chains and chatroom users can send messages in multiple chatrooms. Profile pages are also archival insofar that photographs, status updates and other content remains available semi-permanently after being shared

(Bauer et al., 2013; boyd, 2010; Schoenebeck, Ellison, Blackwell, Bayer & Falk, 2016). In some cases, users forget about specific photographs or written content remaining on their profile often leading to content becoming undesirable several years later after user norms, audiences or goals change (Bauer et al., 2013; Young & Quan-Haase, 2013). Although content can feasibly persist for the life of the social network site, users retain control over the content that remains on their profile page. Many Facebook users have reported removing photographs after being asked by others depicted in the photograph or wanting to avoid the photograph being seen by particular friends, family or colleagues who might view such activity negatively (e.g. illegal drug taking; excessive alcohol consumption; Fournier & Clarke, 2011; Kolek & Saunders, 2008; Morgan, Snelson & Elison-Bowers, 2010; Strano & Queen, 2013; Wang et al., 2011).

Personalised rules, often known as ‘privacy settings’ or ‘privacy controls’, allow users to share their content only with specified audiences such as people with whom they established a friendship connection on the website (Georgalou, 2016; Lampinen, Lehtinen, Lehmuskallio, & Tamminen, 2011; Madejski, Johnson & Bellovin, 2012; Marwick, 2014; Papacharissi & Gibson, 2011). For example, users can enable privacy settings to allow their friends to see their photographs whilst hiding the same photographs from their family, particularly when those photographs would result in disapproval or embarrassment (boyd & Marwick, 2011; Christofides, Muise & Desmarais, 2009; Coyne, Padilla-Walker, Day, Harper & Stockdale, 2014; Kanter, Afifi & Robbins, 2012; Marwick, 2014; Mullen & Hamilton, 2016). Privacy rules can also be set on an item-by-item or a person-by-person basis (Kairam, Brzozowski, Huffaker, & Chi, 2012; Lampinen, Lehtinen, Lehmuskallio, & Tamminen,



2011). For example, a user can hide their most recent photographs from an ex-lover who may become jealous or angered of photographs depicting a new romantic relationship (Marwick, 2014).

Profile pages can also contain content shared by other users (Dhir, Chen & Chen, 2015; Mendelson & Papacharissi, 2010; Pempek, Yermolayeva & Calvert, 2009). A feature, commonly described as 'tagging', allows users to indicate that another user appears within in a photograph, attended the same event, or may be interested in the content. By tagging that other user, the content appears on that other user's profile page in addition to profile page of the user who shared the content (Burke, Marlow & Lento, 2009; Marwick, 2014). Profile owners can hide content that others have tagged them within, commonly referred to as 'untagging', particularly if the content is unflattering or undesirable (Pempek, Yermolayeva & Calvert, 2009; Strano & Queen, 2013; Wang et al., 2011). However, the content would remain available by visiting the profile page of the user who originally shared the content, which can cause anxiety amongst other users who are depicted in undesirable activities (e.g. photographs of a holiday vacation whilst faking sick leave from employment; illegal drug taking; racist behaviour; Marder, Joinson & Shankar, 2012). Untagged content can only be deleted by the author or by administrators of the social network sites who received a complaint (Wang et al., 2011).

The features discussed thus far involve content that users share can regularly to depict recent events or thoughts. Profile pages also contain more static content that changes infrequently including users' written autobiographical descriptions ('About me' sections), lists of their hometown and places that they have lived, lists of workplaces or schools including their job title or course name,

religious or political affiliations, lists of their favourite activities and preferences, their gender, their sexual orientation, and their relationship status including their partner's name if appropriate (boyd & Ellison, 2007; Gosling, Gaddis & Vazire, 2007; Nosko, Wood & Molema, 2010; Rhoads, Thomas & McKeown, 2016; Zhao, Grasmuck & Martin, 2008).

Despite curating profile pages containing dynamic and semi-static content that others can view, users can also view the profile pages of others including their friends and family (Joinson, 2008). Users can commonly find other's profile pages by searching for them by name on the website's internal search engine, following hyperlinks in tagged content, or clicking content shared by them on another person's profile page. Users can also view content shared by their established friendship connections, including friends and family, on a webpage known as a 'newsfeed' which aggregates recent content such as photographs and status updates from those connections (Cramer, Rost, & Holmquist, 2011; Gil de Zúñiga, Jung & Valenzuela, 2012; Hoadley, Xu, Lee & Rosson, 2010; Patil, Norcie, Kapadia & Lee, 2012; Rader & Gray, 2015; Sun, Rosenn, Marlow & Lento, 2009).

By viewing regularly updated, persistent and vast content on profile pages and newsfeeds, users can keep up-to-date with friends and family irrespective of geographical distance and time zone (Ifinedo, 2016; Joinson, 2008; Shklovski, Barkhuus, Bornoe & Kaye, 2015; Subrahmanyam, Reich, Waechter & Espinoza, 2008; Treviño, Morton & Robles, 2016) and for more sinister purposes including stalking former romantic partners (Muisse, Christofides & Desmarais, 2009). Some users purport only using the websites to prevent them from missing updates that would otherwise isolate them from their

friendship groups who interact heavily on the websites (Krishnan & Hunt, 2015). Other users purport using the websites as a time-filling habit, a distraction from more cognitively demanding activities, or to avoid boredom (Krishnan & Hunt, 2015; Shklovski, Barkhuus, Bornoe & Kaye, 2015).

When viewing profile pages, users can only view content that the profile owner's privacy settings allows them to access (Lewis, Kaufman & Christakis, 2009). On Facebook, profile owners often only permit access established friendship connections to view their profile content other than their name and main profile photographs (Madden, 2012). If a user can view another user's content, including wall posts or photographs, then they can leave comments on that content (Joiner et al., 2014; Page, Harper & Frobenius, 2013). A Facebook user, for example, could view an announcement that a friend has been accepted into university and then respond with a congratulatory comment, celebratory photographs, or an emblem signalling their emotional reaction (e.g. approval of the event, commonly referred to as a 'like'; Große Deters, Mehl & Eid, 2016; Joiner et al., 2016; Turnbull & Jenkins, 2016).

By soliciting comments and reactions, users of social network sites can purposefully share content to access resources from their established connections, whether those resources are informational, socio-emotional or financial (Castillo, Petrie & Wardell, 2014; Waddingham, 2013; Lampe, Vitak, Gray & Ellison, 2012; Morris, Teevan & Panovich, 2010; Teevan, Morris & Panovich, 2011; Vitak & Ellison, 2013). After a romantic breakup for example, a user could write a post explicitly describing that the breakup has happened. Alternatively, the user could write a post that implicitly indicates unhappiness but not stating the cause. Both posts could elicit outpouring of emotional support

from a user's existing friends and family either on the website or through other mediums including face-to-face or text messaging (Lin, Tov & Qiu, 2014).

Profile pages and newsfeeds are semi-public insofar that users can share content and interact within the glare of anybody with access to their profile pages and content. Many Facebook users, for example, allow all their established friendship connections to access their profile pages (Madden, 2012). However, the websites also offer more private messaging akin to instant messaging and email (Golder, Wilkinson & Huberman, 2007; Papacharissi, 2009; Quan-Haase & Young 2010; Marder, Houghton, Joinson, Shankar & Bull, 2016). Users can privately send messages consisting of videos, photographs and written text to either a specific individual (e.g. a classmate) or a larger group of individuals (e.g. a close group of friends) who can respond if desired (Sleeper et al., 2016). Only named recipients can view and respond to messages resulting in users discussing private topics that would be unsuitable or irrelevant for broader audiences on a profile page (Barkhuus & Tashiro, 2010; Bazarova & Choi, 2014; Bazarova, Taft, Choi & Cosley, 2013; Manago, Taylor & Greenfield, 2012; Noguti, Singh & Waller, 2016; Tosun, 2012; Wohn, Lampe, Vitak & Ellison, 2011).

The persistent and vast content available on social network sites can prove useful for people whom have recently met and not just amongst more established relationships. People use the websites to get to know others that they recently met face-to-face at a party, during their first week at a new job, or that they met in another online environment including dating and gaming websites (Ellison, Steinfield, & Lampe, 2007; Gibbs, Ellison & Lai, 2011).

The websites can also bring together people who have never previously met in any capacity nor been aware that each other existed (Jin, 2015; Joinson,

2008; Lewis, Kaufman & Christaki, 2008; Lewis & West, 2009; Moore & Craig, 2010; Raacke & Bonds-Raacke, 2008). Users can encounter each other for the first time on social network sites by looking at the profile pages of friends and family who are mutual friends of the pair (Walther, Van Der Heide, Kim, Westerman & Tong, 2008) and viewing or interacting in 'group pages'.

Group pages are dedicated webpages on social network sites where users can discuss content related to a common interest, population, event, activity or location (Abramson, Keefe & Chou, 2015; Alemán & Wartman, 2008; Smock, Ellison, Lampe & Wohn, 2011). Examples of groups include those dedicated to structural equation modelling, young engineers in academia and a support group for self-harm or obsessive compulsive disorder (Bender, Jimenez-Marroquin & Jadad, 2011; Woolley, Limperos & Oliver, 2010). Similar to profile pages, group pages allow users to view, share and interact with content including photographs, written posts, and links to other webpages including news articles (Park, Kee & Valenzuela, 2009). Users who access group pages, whether they contribute or only passively view content, may not necessarily have known each other outside prior to visiting the group. Users may have found the group by receiving a hyperlink from friends, colleagues or organisations. For example, some universities email hyperlinks to Facebook groups dedicated to a student intake on an academic course (e.g. Alemán & Wartman, 2008). Alternatively, users can search for groups relating to a topic using the social network site's internal search engine (e.g. immigration; self-harm; Psychology undergraduates at a university starting their course in September 2016) with a list of relevant groups being returned.

The vast content and design of social network sites affords users the opportunities to selectively construct their identities (Bareket-Bojmel, Moran & Shahar, 2016; Lee-Won, Shim, Joo, & Park, 2014; Zhao, Grasmuck & Martin, 2007). During face-to-face encounters, people seek to present themselves in a manner that makes a desirable impression on others (Baumeister, 1982; Goffman, 1959; Schlenker & Leary, 1982; Sedikides, 1993). People use social network sites to achieve the same outcome and present themselves in a desirable manner that influences how others view them (Counts & Stecher, 2009; Davis, 2010; Zhao, Grasmuck & Martin, 2007). For example, users can selectively share content that is flattering (e.g., positive achievements, attractive pictures), glamorous (e.g., photographs of scenic travel location) or influences judgements about intelligence (e.g., posting links or comments on interesting news articles; Hum et al., 2011; Kapidzic, 2013; Ollier-Malaterre, Rothbard & Berg, 2013). Users can also selectively minimise presenting themselves in an undesirable manner by removing content that might portray them in an undesirable light or choosing to avoid uploading that content entirely (Marder, Joinson, Shankar, & Houghton, 2016; Pempek, Yermolayeva & Calvert, 2009; Sleeper et al., 2013; Wang et al., 2011).

Many social relationships on social network sites are described as ‘anchored’ insofar that users know each other outside of the social network sites often having met face-to-face prior to establishing a friendship connection on the website (Zhao, Grasmuck & Martin, 2008). The presence of existing relationships on social network sites differs from dating websites, online forums and chatrooms whereby users often do not already know each other prior to their earliest encounters in the environments.

Anchored relationships pose a dilemma for users constructing identities on social network sites. Users seek to present themselves in a socially desirable manner (Alicke & Sedikides, 2009; boyd, 2010; Kitayama, Markus, Matsumoto & Norasakkunkit, 1997; Sedikides & Gregg, 2008; Snyder, 1974). In online environments not dominated by anchored social relationships, such as chatrooms and online forums, users can fabricate identities that significantly depart from reality should they wish (Drouin, Miller, Wehle & Hernandez, 2016; Whitty, 2002; 2008). Making convincing, inaccurate identity claims is easier to achieve on websites lacking anchored relationships because audiences do not possess an existing frame of reference about the user to verify the claim's accuracy therefore users can fabricate without fear of others detecting or denigrating their deception (Walther, 2007; Warkentin, Woodworth, Hancock, & Cormier, 2010). In contrast, users of social network sites need to be much subtler when enhancing themselves online because their friends, family and colleagues already possess a frame of reference to verify the accuracy of identity claims (Zhao, Grasmuck & Martin, 2008). Significant misrepresentation would risk a profile owner being denigrated by friends and family if detected (Baumeister & Jones, 1978).

Social networks bring together existing friends, family and colleagues. Consequently, users of the websites also have a reasonable expectation for future encounters with their established connections (Zhao, Martin & Grasmuck, 2008). The influence of expecting future encounters on identity construction is apparent when considering online environments where relationships are not anchored but future meetings are expected including dating websites where users first meeting hoping for a face-to-face date or romantic relationship (Heino, Ellison & Gibbs, 2010; Walther, 2006). Online daters describe themselves as more honest in their

dating profiles when they anticipate meeting others on the website face-to-face compared to when they did not anticipate meeting (Gibbs et al., 2006). Participants who believe that they will meet their online chat partners in the near future tend to less dramatically exaggerate their weight, height and age compared to those who do not expect to meet (Guadagno et al., 2012; Toma, Hancock, & Ellison, 2008). Extrapolating to social network sites, users should be more likely to exhibit restraint when selectively presenting themselves not just because of the presence of anchored social relationships but also expected future meetings with any new social relationships.

Despite being prone to greater restraint than other online environments, this is not to say that self-enhancement is absent on social network sites. The extent to which users engage in self-enhancement on social network sites may be determined by dispositional factors (Danowski, 2008; Lee-Won, Shim, Joo, & Park, 2014; Marshall, Lefringhausen & Ferenczi, 2015; Nadkarni & Hofmann, 2012). Facebook users who are more introverted tend to exaggerate information on their profile page to look popular (e.g. writing frequent status updates or messages; increasing their friend count by adding connections that they do not know well (Danowski, 2008). Comparatively, users who are more extraverted exaggerate their profile pages less and instead share photographs and status updates that already reflect their more social nature (e.g. photographs attending parties; frequent, naturally-occurring wall post interactions between friends). Introversion is characterised by a person being reserved and solitary whereas extraversion is characterised by being outgoing, keen for interaction and energetic (Eysenck & Eysenck, 1963).



This subsection has depicted social network sites as online environments containing features that users can utilise to present themselves to others irrespective of whether the audience is known to the user or not. The persistence and co-creation of identities with others on profile pages through photographs, written status updates and fairly static biographical content is useful for keeping existing relationships apprised of life events and people first getting to know each other. The next subsection describes the methods that people use to get to know each other during the early stages of a relationship on the websites followed by a final subsection describing the factors that influence the impressions formed on the websites.

### **What methods do people use to get to know each other on social network sites?**

The earliest stages of social relationships are characterised by people experiencing uncertainty or a lack of predictability about each other (Neuliep & Grohskopf, 2000). The uncertainty can involve numerous facets including others' behaviour, motivations, attitudes, emotions and abilities (Clatterbuck, 1979). The research literature is underdeveloped for the common scenarios in which people first get to know each other on social network sites. However, research involving other environments can be used to develop a tentative understanding of the methods that people use on social network sites to get to know each other.

Researchers have identified numerous methods that people use to get to know each other in offline, face-to-face encounters. Encounters are any action whereby a person comes into contact, either intentionally or unintentionally, with identity-related information pertaining to another individual or group (Berger &

Bradac, 1982). Given the wide range of encounters that people can have with each other, encounters can be grouped together based on conceptual similarity. Groups of encounters that are conceptually similar can be referred to as strategies (Berger & Calabrese, 1975; Berge & Bradac, 1982). Berger (1979) identified three information-seeking strategies that people use when getting to know others: passive, interactive and active strategies.

A passive strategy involves an individual getting to know others through encounters that involve unobtrusive observation without any direct interaction (Berger & Bradac, 1982). An example is getting to know a new colleague by watching their interactions with other people during a meeting (Berger & Douglas, 1981). Comparatively, an interactive strategy involves an individual getting to know others by directly interacting with them (Berger, 1979). An example involves getting to know a new colleague by talking with and asking them questions (Berger & Kellermann, 1983). Other examples involve manipulative tactics including self-disclosing to others to reciprocate similar acts of disclosure (Baxter & Wilmot, 1984) or relaxing others to elicit responses (Miell & Duck, 1986). Finally, an active strategy involves an individual getting to know others by directly interacting with mutual acquaintances or other third party sources (Berger, 1987). An example involves getting to know a new colleague by asking a former colleague about them (Berger, 2002).

The passive, interactive and active strategies have been conceptually applied to describe how people get to know each other during the early stages of a relationship that began face-to-face in interviews and small groups (Berger, 1979) and online including chatrooms and email (Antheunis, Schouten, Valkenburg, & Peter, 2012; Ramirez, Walther, Burgoon & Sunnafrank, 2002).

The strategies have also been conceptually and empirically applied to describe how people get to know others from initial encounters on social network sites (e.g. Antheunis, Valkenburg & Peter, 2010; Fox, Warber, & Makstaller, 2013). Examples of how the three strategies have been applied to social network sites are considered in turn.

As discussed, a passive strategy involves an individual unobtrusively observing other people without any direct interaction (Berger & Bradac, 1982). On social network sites, examples of encounters aligned to a passive strategy include viewing a new coursemate's Facebook photographs or reading a new colleague's tweets on Twitter (Antheunis, Valkenburg & Peter, 2010; Wise, Alhabash & Park, 2010). People using a passive strategy has access to abundant identity cues about a person including those contained in that person's profile page, recently posted updates from their newsfeed, or a group page containing interactions with others.

Identity cues are potential signals which could lead others to form an impression about a person (Donath, 2007; Lampe, Ellison & Steinfield, 2007). Identity cues are present in all possible content features available on a person's profile page including the profile image, photos and videos that the profile owner is tagged within, the status updates that the profile owner writes, the types of articles that the profile owner shares, and all of the comments the profile owner writes in response to content shared by his/her friends and family (Carr, Vitak & McLaughlin, 2011; Hall, Pennington & Lueders, 2013; Zhao, Grasmuck & Martin, 2008).

Consider a profile image depicting the profile owner standing at a football stadium with friends, with a football scarf wrapped across their body,

and a cup containing an unidentified drink (e.g. Farquhar, 2013). The profile image contains several identity cues. The environment of the football stadium is a visual identity cue which might lead to an impression that the profile owner is a football fan and enjoys watching sports. Similarly, the logo and insignia on the football scarf are identity cues that might lead to an impression that the profile owner is a fan of a particular football team or once lived in the home city of that football team. In turn, the impression of the person might be influenced by stereotypes about the people who live in that city or by any rivalries between the teams of profile owner's and the user forming the impression. Finally, the presence of the profile owner within a group each of whom is holding a drink may be a visual identity cue that leads to an impression of the profile owner being sociable and enjoying the company of others.

Some of the identity cues accessed by a passive strategy might be the result of explicit or implicit identity claims that profile owners intentionally make about themselves (Ellison, Heino & Gibbs 2006; Zhao, Grasmuck & Martin, 2008). Explicit identity claims involve users declaring aspects about their identity including through autobiographical descriptions (e.g. the 'About Me' section on Facebook), status updates detailing their mood, and lists of their preferences (Bolander & Locher, 2015). If a profile owner uses their autobiographical description to describe themselves as commonly angry or unhappy, then a user viewing their profile page might form an impression about him to a similar effect.

Users can also strategically use social network sites to make implicit identity claims about themselves which are subtler, intentional declarations of identity which are not plainly expressed but are instead hinted at through online

behaviour (Zhao, Grasmuck & Martin, 2008). For example, the same user described in the preceding paragraph might be depicted in several photographs engaging in social activities with friends (e.g. attending parties; attending sports matches) and enjoying other's company (e.g. smiling with friends). The impression gleaned from the subtler identity cues might be that the user is sociable and friendly which is in stark contrast to the inferences from explicit identity cues about the user being angry and unsociable.

A passive strategy also have access to less intentional, less strategic identity cues known as 'behavioural residue' that are inadvertently expressed through profile owners' behaviour (Fullwood, 2015; Gosling, Ko, Mannarelli & Morris, 2002). Profile owners may be entirely unaware of the impressions formed from the inadvertent identity cues given off by their behaviour (Gosling, Ko, Mannarelli & Morris, 2002). For example, profile owners that do not regularly update their profile pages may be unaware that such behaviour is an identity cue from which others have formed the impression that he or she is extremely busy or unsociable. Similarly, wall posts containing poor grammar and the incorrect spelling might be unintentional but could lead to users reading those posts and forming the impression that the profile owner lacks conscientiousness or intelligence (Fullwood, Quinn, Chen-Wilson & Chadwick, 2015; Scott, Sinclair, Shot & Bruce, 2014). A person lacking conscientiousness is disorganised, lackadaisical, laid back and less driven by success and acting in a socially appropriate manner (Costa & McCrae, 1991). Behavioural residue also includes a profile owner frequently sharing content on their profile page. A user viewing the high frequency of posts in their Facebook newsfeed may infer that

the person responsible is sociable or attention seeking (Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011).

People can use a passive strategy to get to know others on social network sites without detection irrespective of whether the identity cues are from implicit identity claims, explicit identity claims or from inadvertent behavioural residue. Profile pages persist for others to view even when the profile is offline (boyd & Ellison, 2007) and the owners are rarely given feedback that an individual has viewed their page (Acquisti & Gross, 2006; boyd & Ellison, 2007; Hancock, Toma, & Fenner, 2008; Tong, 2013). Both design features make passive strategy efficient when people get to know others on social network sites particularly given the abundance of identity cues on many profile pages (e.g. Nosko, Wood & Molema, 2010).

Another information seeking strategy known as an interactive strategy can also be easily applied to social network sites. An interactive strategy involves encounters whereby an individual directly interacts with other people. For social network sites, examples of encounters aligned to an interactive strategy includes a person sending a private message or using group pages to ask questions of a new coursemate (Gibbs, Ellison & Lai, 2011).

Identity cues can emerge from encounters aligned to an interactive strategy. For the private messaging functionality available on social network sites, many cues would be described as behavioural residue due to being unintentional yet can still be drawn upon to form impressions (Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011). Timestamps identifying when instant messages were sent are time-related or 'chronemic' identity cues that could be drawn upon to form the impression that a person is rude or an extremely

busy person after failing to reply within a short period, or that a person is very sociable if they consistently, rapidly respond (Buffardi & Campbell, 2008; Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011; Hall & Pennington, 2013). Similarly, a new acquaintance might be perceived a very sociable, excitable or likeable if replying with messages containing numerous exclamation marks, positively-connoted emoticons (e.g. smiling or winking emoticons) or references attendance at many social events (Byron & Baldridge, 2007; Ganster, Eimler & Krämer, 2012).

Unlike passive and interactive strategies, the active strategy is more indirect and involves encounters whereby an individual proactively elicits information about others without any direct interaction with them (Baxter & Wilmot, 1984). For social network sites, an example of an encounter aligned to the active strategy is a person contacting a mutual friend to ask them questions about a new coursemate. Many social network sites display mutual friends whenever an individual visits another person's profile page (Ellison, Steinfield & Lampe, 2007). Despite being from a third party, the mutual friend's response could contain identity cues about a new coursemates or colleague that could then be relevant for a person to form an impression about their new coursemate or colleague. For example, a mutual friend could explicitly respond by describing a new coursemate as having a strong sense of humour. Similarly, the mutual friend could describe how the coursemate enjoys kayaking, rock climbing and hiking which may implicitly signal that the colleague is athletic and outgoing.

An active strategy does not rely solely on direct interaction with mutual friends, however, but can involve viewing content contributed by third-parties, namely friends and family. Profile pages can contain content not contributed by

the profile owner but instead contributed by the friends and family of the profile owner (Moore & McElroy, 2012; Nadkarni & Hoffmann, 2012). Content contributed by others can contain identity cues that are relevant to forming impressions about the profile owner. For example, a profile page could contain wall posts written by profile owner's friends discussing recent parties and social gatherings. After reading those discussions, a user might form the impression that the profile owner is sociable (Hall & Pennington, 2013; Walther et al., 2008).

Passive and active strategies are similar insofar that both can involve photographs, status updates, and comments that are commonly available on a profile page. The strategies overlap insofar that profile owners retain some control about what content and therefore which identity cues others can share on the profile page and will remain over time (Bryant & Marmo, 2012; Johnson, Egelman & Bellovin, 2012). However, the continued distinction between the strategies is important given that impression formation is affected by whether identity cues originate from a profile owner (a passive strategy) or another person (an active strategy). Users form impressions that more heavily draw upon identity cues originating from the profile owner's friends and family than the profile owner themselves presumably due to friends having less vested interest in manipulating the profile owner's identity towards social desirability norms than the profile owner him or herself (Hall & Pennington, 2013; Walther et al., 2009). Similarly, the distinction should be retained given that profile owners cannot control the initial sharing of content about them in private messaging or on others' profile pages although they can ask administrators or the person



responsible to retract such content and the identity cues at a later stage (Besmer & Lipford, 2010; Lampinen, Lehtinen, Lehmuskallio & Tamminen, 2011).

Despite being applied conceptually, limited research has explored whether Berger's (1979) three information-seeking strategies offer an accurate model of how people get to know others on social network sites. In the only study, Antheunis, Valkenburg and Peter (2010) conducted a confirmatory factor analysis which demonstrated that Berger's three strategies provide a well-fitting model of the methods that people use when getting to know individuals on social network sites. Antheunis et al.'s findings are somewhat limited, however, beyond the social scenario explored in their study. Participants indicated which of fourteen encounters they had when getting to know an acquaintance that they met on a social network site in the preceding thirty days whom they had not previously met. Those encounters were then aligned to the three strategies. There are some social networks sites where initiating connections with unfamiliar people is common including business networks (e.g. LinkedIn) or mass microblogging sites (e.g. Twitter). However, Antheunis et al. explored a friend-networking site named Hyves.

The Hyves social network site was retired in 2013 although was the largest social network site in the Netherlands at the time of data collection in Antheunis et al.'s study in 2006 (Corten, 2012; Hofstra, Corten & van Tubergen, 2016; Utz, 2010). The website had high penetration amongst adolescents and young adults as is the case with Facebook which was the largest social network site at the time of this thesis' writing (Hofstra, Corten & van Tubergen, 2016). In 2006, Hyves was similar to Facebook apart from the geographical focus within the Netherlands whereas Facebook has a broader global demographic (Duggan,

Ellison, Lampe, Lenhart, & Madden, 2015; Utz, 2010). As with Facebook, the Hyves website centred around profile pages where users could curate their identity both visually and descriptively by uploading a profile picture to identify themselves, uploading photographs of themselves and their friends and colleagues, describing themselves in a short autobiography, listing their friendship connections, and listing their preferences (e.g. favourite music and activities; Utz, 2008, 2010). Similar to Facebook, the content on a Hyves profile page persisted over time for others to view until the content was deleted by the user or the website was retired. Hyves also allowed users to communicate with each other by commenting on each other's shared photographs and written posts, written exchanges through private messaging, and discussing a particular topic or event in dedicated group pages (Utz & Kramer, 2009). As with Facebook, Hyves allowed users to adopt privacy settings on a profile basis, an item-by-item and user-by-user basis (Utz, 2010). However, most users were unaware or did not use the privacy settings instead relying on the default option of allowing any other users to view their profile page (Utz & Kramer, 2009). Unlike Facebook and many social network sites, Hyves allowed users to browse without advertisements.

Distinguishing between friend networking sites and other types of social network sites is key because friend networking sites (e.g. Hyves, Facebook) are not commonly used for meeting new people and initiating connections but instead for maintaining existing friendships that predated encounters on the website (Hall, 2014; Joinson, 2008). Friend networking sites tend to only involve initiating friendships in specific scenarios including getting to know housemates and coursemates before starting a new university (e.g. Alemán & Wartman,

2008), new colleagues before starting a new job (e.g. DiMicco, Millen, Geyer, Dugan, Brownholtz & Muller, 2008), or a potential new romantic partner (Fox, Warber & Makstaller, 2013). Antheunis et al. did not explore any of those scenarios instead exploring an uncommon scenario involving an individual getting to know a new acquaintance added on a social network site on the spur of the moment. Consequently, Antheunis et al.'s study can be considered fairly decontextualized from the types of scenario that getting to know new acquaintances on social network sites usually takes place.

The criticism is pertinent because people are less likely to try getting to know others offline when they do not expect meaningful future encounters with them (Berger, 1979; Berger & Bradac, 1982; Berger & Douglas, 1981; Douglas, 1985, 1987; Kellermann 1986; Sunnafrank, 1986; Tidwell & Walther, 2002; Walther, 1994). People are less likely to use the passive, interactive and active strategies to get to know others with whom they are unlikely to meet anything more than infrequently in the future (Douglas, 1987). Instead, people are much more likely to simply make a limited or no further attempt to get to know others. Participants in Antheunis et al.'s study might have had different expectations of the future encounters with their new acquaintances compared to people using social network sites when getting to know their housemates and coursemates before starting a new university, new colleagues before starting a new job, or a potential new romantic partner. They likely had lower expectations of future meaningful encounters compared to the other social scenarios therefore the patterns of how people get to know others in Antheunis et al.'s study may not be directly comparable to the patterns exhibited in more ecologically valid social

scenarios where the participants have a reasonable expectation of future meaningful encounters.

Given the limited number of social scenarios that Antheunis et al.'s study represents, the extent that Berger's (1979) three information seeking strategies can be successfully applied to social network sites remains conceptual. Further research is required to empirically explore the application of those information seeking strategies in more common, realistic acquaintanceship scenarios on social network sites.

Ramirez et al. (2002) proposed a fourth strategy known as the extractive strategy to accompany Berger's (1979) passive, active and interactive strategies. The extractive strategy involves encounters whereby an individual gets to know others by accessing archived content retrieved from databases (Ramirez et al., 2002). An example of an encounter aligned to an extractive strategy involves an individual getting to know a new housemate by conducting an informal background check using a search engine where they have access to a wide range of historical, archived content (Gibbs, Ellison & Lai, 2011). The historical, archived content may involve an old dating website profile and forum posts authored by the housemate. On social network sites, an encounter aligned to an extractive strategy might involve typing a new coursemate's name into the websites internal search function to return all the posts written or shared by that housemate that are publically available.

Conceptually, the passive and extractive strategies are extremely similar which lead to difficulties differentiating the strategies. Both passive and extractive strategies involve observation of a social target without any direct interaction with that target. The key difference between the strategies is the age

of the accessed content. The extractive strategy involves archival content whereas the passive strategy involves more recent content (Gibbs, Ellison & Lai, 2011). The distinction between archival and more recent content is minor for social network sites given that older and more recent content is available on the same website and presented side-by-side (Bevan et al., 2015; Caci, Cardaci, Tabacchi & Scrima, 2014; Spiliotopoulos & Oakley, 2013). The distinction between passive and extractive strategies is clearer for other online environments such as chatrooms whereby shared content is not persistent over time. In chatrooms, a passive strategy may involve observing a user interact within a chatroom in real-time with no ability to view older messages sent outside the timeframe of the observation. Comparatively, the extractive strategy for the chatroom environment may involve accessing older, archived chat logs involving that same user.

Subtle differences between accessing older archival content and more recent content on social network sites can help to elucidate the distinction between passive and extractive strategies on the social network sites. Many social network sites present the most recent content on profile pages whereas older content requires retrieval using more effortful methods. On Facebook, for example, access to older archival content may involve choosing a timeframe (e.g. "Posts from 2009"), iteratively scrolling through in reverse chronological order, or using search terms to retrieve content containing a specific phrase used in the past (DiMicco & Millen, 2007; Van Dijck, 2013; Wisniewski, Xu & Chen, 2014). More recent content on profile pages is shown without the user having to engage in much effort other than navigating to a profile page where they are presented with recent content or viewing the content in their aggregated

newsfeed. The practical similarity between the passive and extractive strategies may have contributed to the extractive strategy rarely having been discussed in the research literature involving social network sites.

Berger's (1979) and Ramirez et al.'s (2002) information seeking strategies are not the only methods that people use during the early stages of a relationship that could be applied to social network sites. For example, people often seek out social support from friends or professionals to help them cope with the uncertainty about others that they will likely meet in the future, proactively avoid situations that could lead to encounters which might prompt uncertainty, or simply ignore uncertainty and make no further attempts to get to know others (Brashers, 2001). People are more likely to use those alternative methods when they expect the outcome of learning about others to be overwhelmingly negative (Sannafrank, 1990), are morally opposed or perceive themselves as lacking the technical knowledge to seek out information about others (Afifi & Weiner, 2004; LaRose & Eastin, 2004; Ramirez & Zhang, 2007; Tokunaga & Gustafson, 2014), frame uncertainty as a positive experience (Brashers, 2001), have a high tolerance of uncertainty (Gudykunst, 1993; Kellerman & Reynolds, 1990; Tokunaga & Gustafson, 2014), or have low expectations of meaningful future encounters (Douglas, 1987). None of those different methods or circumstances have been explored on social network sites, however, which highlights the limited research understanding of the methods that people use to first get to know others on those websites.

Given the lack of research into the methods that people use to get to know others on social network sites during early stages of a relationship, it is unsurprising that researchers have not engaged in much in-depth exploration of

the *extent* that people use different methods to get to know each other on those websites. When face-to-face, people tend to use an interactive strategy more than a passive strategy when trying to get to know others (Berger & Kellerman, 1983; 1994). However, the finding is not as easily applicable to online environments where people can more easily assume anonymous identities and passively observe others without fear of detection (Ramirez, Walther, Burgoon & Sunnafrank, 2002; Suler, 2004). When a social relationship is in its' relative infancy, Westerman, Van Der Heide, Klein and Walther (2008) demonstrated that people prefer media where passive strategies can be used with minimum detection by others. Examples of those media include social network sites and blogs. People tended to be more comfortable using other forms of media, such as instant messaging and video conferencing which also allow interactive strategies, once the relationship develops. Westerman et al. however, did not use any specific measure of the strategies other than whether other users could detect users attempts to get to know them (interactive strategy) or not (passive strategy). Consequently, their study cannot be used to directly compare the frequencies with which people use Berger's (1967) strategies. However, Westerman et al.'s study does suggest that, on social network sites, a passive strategy might be more heavily used during the early stages of a relationship compared to an interactive strategy due to the ability to remain undetected using a passive strategy, and the social awkwardness of interacting with somebody with whom very little is already known. The prediction was partly supported by Antheunis, Valkenburg and Peter (2010) who reported that people used a passive strategy more frequently than an interactive strategy when first getting to know a new acquaintance on a social network site, and in turn people used an interactive

strategy more frequently than an active strategy. As discussed, however, Antheunis et al.'s findings require further exploration using a more ecologically valid social scenario.

People can get to know each other using Berger's (1979) strategies across different environments including between face-to-face and online (Ramirez, Walther, Burgoon, & Sunnafrank, 2002) and between multiple online environments (e.g. Facebook and dating websites; Gibbs, Ellison & Lai, 2011). To date, however, researchers have only identified that people search for interpersonal information about others across these different environments and that there are broad differences in the extent that people use those media to find out about others (Gibbs, Ellison & Lai, 2011; Westerman et al., 2008). No direct empirical research has explored how people use different methods, including Berger's three strategies, across multiple environments.

This literature review identified that relatively little is understood about the methods that people use when trying to get to know others during the early stages of a relationship on social network sites. Berger's (1979) existing model of how people get to know each other in offline and online environments (i.e. email, chatrooms) has been *conceptually* applied to social network sites. However, there remains limited *empirical* testing of whether Berger's model can be successfully applied to social network sites particularly in ecologically valid social scenarios where people are getting to know others with whom they expect future meaningful encounters.



### **What factors influence impression formation on social network sites?**

Impression formation is the process of an individual developing a perception about a target whether that target is a person (Fiske & Neuberg, 1990; Forgas & Bower, 1987), a group of people (Hamilton & Sherman, 1996), an event (McGregor & Holmes, 1999), an inanimate object (Mitchell, Macrae & Banaji, 2005), an animal (Gosling, Kwan & John, 2003) or a company or corporation (Baker, Grewal & Parasuraman, 1994; Mazursky & Jacoby, 1986; Williams & Moffit, 1997). For scope and relevance, this literature review restricts the discussion of impression formation to how people form impressions about other people such as an individual (e.g. Livesley & Bromley, 1973) or about a group of people (e.g. Dasgupta, Banaji & Abelson, 1999). Impressions can be formed about a spectrum of characteristics including personality (Anderson, 1965; Asch, 1946; Hamilton, Katz & Leirer, 1980; Stopfer, Eglos, Nestler & Back, 2014), motivations (Ham & Vonk, 2011), physical appearance (Eagly, Ashmore, Makhijani & Longo, 1991), and ability or intelligence (Maier, Elliot, Lee, Lichtenfeld, Barchfeld & Pekrun, 2013).

Impressions can be affected by numerous factors including the behaviour and characteristics of the person about whom the impression is formed. Research involving offline encounters suggests that impressions of personality can be influenced by whether behaviour is coherent, consistent and distinctive (Fiske & Neuberg, 1990; Fiske, Lin & Neuberg 1999; Hamilton, Katz & Leirer, 1980; Hampson, 1998), whether behaviour is perceived as positive or negative (Coover & Reeder, 1990; Ito, Larsen, Smith & Cacioppo, 1998; Skowronski & Carlston, 1989), and perceived similarity (Denrell, 2005; Dépret & Fiske, 1999; Gawronski, Geschke & Banse, 2003).

Impression formation is not entirely dependent on the person or people about whom impressions are formed, however (Brewer, 1988). Research based on offline encounters suggests that impressions are affected by the emotions (Forgas, 2011a; 2011b; Forgas & Bower, 1987; Hunsinger, Isbell & Clore, 2012), goals and motivations (Chartrand & Bargh, 1996; Gibson & Poposki, 2010; Neuberg & Fiske, 1987), attitudes (Holahan & Stephan, 1981), culture (Smith, Matsuno & Umino, 1994; Vrij & Winkel, 1994) and stereotypes (Branscombe & Smith, 1990; Dijksterhuis, Spears, & Lépinasse, 2001; Greenwald & Banaji, 1995) of the person forming the impression. Impression formation is also affected by the situation in which the impression is formed including the situational context (Bargh, Lombardi & Higgins, 1988), the order of the information and encounters on which impressions are based (Anderson, 1965; Anderson & Barrios, 1961; Jaccard & Fishbein, 1975; Jones & Goethals, 1987; Kaplan, 1971) and whether those impressions are discussed with others (Ruscher, Hammer & Hammer, 1996).

Impression formation can be either intentional or automatic (Uleman, 1999; Uleman, Saribay & Gonzalez, 2008). Intentional impression formation involves consciously forming impressions when prompted. For example, a person may be asked their thoughts about a colleague and subsequently will form their impression. Automatic impression formation occurs when people unconsciously and spontaneously form impressions without prompt. For example, a person may near-instantly form an impression of their colleague after meeting them for the first time. In many cases, people do not explicitly acknowledge or verbalise automatic impressions unless prompted at which point

those automatic impressions becomes intentional (Uleman, Saribay & Gonzalez, 2008).

The research reviewed has thus far summarised the factors that influence impression formation from *offline* encounters only. Although research from offline encounters is important in understanding impression formation online, there remains a range of research into the factors that influence impression formation online specifically.

#### *Availability of identity cues*

Impression formation on social network sites assumes that explicit identity cues, implicit identity cues and behavioural residue can be communicated within an online environment. Proponents of cues-filtered out theories have challenged the assumption (e.g. Culnan & Markus, 1987; Daft & Lengel, 1984; Kiesler, Siegel & McGuire, 1984; Sproull & Kiesler, 1986; 1991). As an example of a cues-filtered out theory, Media Richness Theory proposed at least four factors that differentiate the success with which communication environments can convey identity cues between people (Daft & Lengel, 1984; Spears, Lea & Postmes, 2001). These four factors include the range of dimensions through which identity cues can be communicated in an environment (e.g. auditory only such as intonation or pitch, visually only such as facial expression or emoticons, or both auditory and visually), the range of variance available those dimensions (e.g. the range of possible variations in intonation, pitch, facial expressions or emoticons), the granularity with which those identity cues can be personalised to the audience (e.g. ability to send to a single user or to many users), and the immediacy of the feedback from the recipient (Daft & Lengel, 1986).

Using those four factors, face-to-face and technology-mediated environments can be ranked on a continuum indicating the extent that identity cues can be successfully communicated (Rice & Shook, 1990). Face-to-face communication is generally ranked nearer the top of the continuum and is described as cue-rich insofar that identity can be implicitly or explicitly communicated via a broad range of dimensions (e.g. clothing; gestures; facial expressions; intonation; speech tempo and timing) amongst which there can be a wide degree of variance (e.g. many different types of clothes; several possible facial expressions; Spears, Lea & Postmes, 2001). When face-to-face, people can also receive immediate feedback from others' reactions and can subsequently tailor identity claims to both specific individuals and large groups alike (Dennis & Kinney, 1998).

Historically, online environments are described as leaner and offer a more restricted set of dimensions upon which identity can be communicated compared to face-to-face (Spears, Lea & Postmes, 2001; Walther, 1992). In email and chatrooms, for example, identity cannot be communicated using sound (e.g. intonation, pitch) or using visual dimensions common to face-to-face encounters (e.g. visual appearance such as clothing). Other linguistic dimensions are available to convey identity-related information, for example emoticons, but the possible variation in those dimensions is less extensive compared to face-to-face encounters (e.g. facial expressions on physical human faces; Kahai & Cooper, 2003). In cue-lean environments, the restricted set of dimensions is theorised to reduce the availability and clarity of identity cues from which people can form impressions (Hancock & Dunham, 2001). In turn, individuals should have difficulty forming impressions about others compared to face-to-face

environments within which people can instead draw from an abundance of identity cues (Walther, 1992).

The reduced-cues nature of lean online environments such as chatrooms and email upon which cues-filtered out theories were developed is not necessarily representative of more contemporary online environments such as social network sites, however (DeRosa, Hantula, Kock & D'Arcy, 2004; Kaplan & Haenlein, 2010). Social network sites are visually diverse with photographs and videos that contain a range of dimensions upon which identity can be implicitly or explicitly communicated (e.g. facial expressions; clothing; depiction of activities; tagging of visited locations). Similar to chatrooms and email, written status updates on social network sites contain a range of linguistic dimensions upon which identity can be communicated (e.g. capitalisation, intentional misspellings, emoticons). However, social network sites do not necessarily match the breadth of dimensions upon which identity cues can be communicated face-to-face. For example, social network sites, chatrooms and emails alike cannot communicate identity cues using scent which is possible between people who are face-to-face (e.g. a strong perfume affecting an impression; Kock, 2004).

Beyond the feasibility of forming impressions, however, Media Richness Theory and other cues-filtered out theories imply that any impressions that are formed in online environments should be significantly less accurate compared to impressions formed face-to-face (Hancock & Dunham 2001; Tanis & Postmes, 2008). Impressions would be less accurate because the identity cues from which to form detailed impressions are not present or are not communicated with much clarity. However, research suggests that people can form fairly accurate

impressions of each other during the early stages of a relationship in cue-rich online environments including social network sites. When making judgments about another person's personality, strangers who had only briefly viewed the profile page of that person on a social network site provided personality ratings that were very similar to ratings offered by close friends and family who knew those person incredibly well and had likely interacted with them in a variety of face-to-face encounters over several years (Back et al., 2010; Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011; Hall, Pennington & Lueders, 2014; Stopfer, Egloff, Nestler & Back, 2014). For example, ratings of a person's openness to experience given by that person's friends and family did not significantly differ from the openness to experience ratings by strangers about the same person even when those strangers had only seen the person's profile page and had never met face-to-face. Openness to experience is characterised by a preference for variety, curiosity, active imagination, aesthetic sensitivity and attentiveness to inner feelings (McCrae, 1994; McCrae & Costa, 1997; McCrae & Sutin, 2009).

The similarity between personality judgements formed by friends and strangers is contrary to a cues-filtered out perspective because the strangers would only have accessed a reduced set of cues in the online environment whereas friends would have access to a richer set of cues outside of those environments and over the length of the friendship through face-to-face encounters. Impression formation, at least in terms of some personality judgements, does not appear to be dramatically affected by being formed on social network sites compared to face-to-face instead highlighting that the cues-

filtered out perspective is inappropriate for the contemporary online environment.

It should be noted that the accuracy of personality judgements between close friends and strangers was not consistent across all personality traits. Gosling et al. (2011) and Stopfer et al. (2014) reported a greater similarity in ratings for the openness to experience, extraversion and conscientiousness whereas ratings for neuroticism differed significantly between close friends and strangers. Neuroticism is characterised by a low tolerance for stress and a tendency to react to ordinary situations with anxiety, fear, irritability, anger, and sadness (Barlow, Ellard, Sauer-Zavala, Bullis & Carl, 2014; Eysenck, 1947; Goldberg, 1993). The difficulty of judging neuroticism is apparent in impressions formed from online environments and face-to-face (Hirschmüller, Egloff, Schmukle, Nestler & Back, 2015). Consequently, the lack of accuracy in forming impressions of neuroticism reflects wider difficulties judging the trait which are not restricted to online environments.

Media Richness Theory and other cues-filtered out theories propose that individuals forming impressions from online encounters will be less confident about their impressions compared to face-to-face encounters. The lower confidence is based on there being fewer available cues upon which individuals can be successfully differentiate and predict the behaviour of one person from others (Tanis & Postmes, 2003; 2008). Gibbs, Ellison and Heino (2006) highlighted that online daters can be sceptical of the impressions that they form about potential partners from online dating profiles and that meeting face-to-face is the preferred method of getting to know potential partners. At first glance, Gibbs et al.'s findings and the findings of similar studies align with a cues-

filtered out perspective due to the online daters lacking confidence about their impressions formed from online encounters relative to face-to-face encounters. However, Gibbs et al. highlighted that the inferiority of impressions that daters formed about each other online was due to their distrust of the identity cues from which those impressions were formed, not the absence of those cues. Online daters discussed lacking trust in their impressions because daters communicating online can more easily enhance aspects of themselves compared to face-to-face. Due to being physically isolated from one another and having never previously met, online daters had no frame of reference to verify whether the appearance, personality or interests of their counterparts was accurate or not therefore their confidence was limited. Despite lacking trust in their own impressions, online daters nonetheless reported having formed impressions about the people that they met on dating websites and that this was based on identity cues contained within the environment.

In contrast to cues-filtered out theories, Gibbs et al.'s findings imply that there is a possibility that confident impressions can still be formed in online environments lacking the same identity cues as available face-to-face especially when those identity cues can be verified as accurate. Gibbs et al.'s findings align more with Warranting Theory which suggests that individuals can form impressions from online encounters but that identity cues perceived as more verifiable and less open to manipulation are attributed greater weight when forming those impressions than identity cues perceived as less verifiable and more malleable (DeAndrea, 2014; Stone, 1995; Walther & Parks, 2002).

Overall, the cues-filtered out perspective lacks support given that modern online environments including social network sites can feasibly communicate a



wider range of identity cues than has historically been the case in older online environments, coupled with a range of research highlighting that the accuracy of impressions formed in those modern contemporary environments can approach a similar level to those made face-to-face. The cues-filtered out perspective also lacks support in the presence of a range of research highlighting that the reduced confidence that people have in their impressions formed from online encounters may not solely be due to the reduced availability of identity cues but instead relates to the extent that those cues are open to manipulation and considered useful for forming impressions.

Unlike the cues-filtered out perspective, proponents of the cues-filtered in perspective suggest that identity cues can be communicated in online environments and that those identity cues are the basis of forming impressions from encounters in those environments. Examples of cues-filtered out theories include the Social Identification/De-individuation Model (Reicher, Spears & Postmes, 1995), Social Information Processing Theory (Walther, 1992; Walther & Burgoon, 1992) and the Hyperpersonal Model (Walther, 1996; Walther & Parks, 2002). The theories, which will be considered in turn, predict that the availability of identity cues and the nuances of the online environment can affect impression formation.

The Social Identification/De-individuation (SIDE) model suggests that in anonymous environments, people are likely to form impressions that apply group characteristics to an individual irrespective of whether those characteristics are accurate or not (Reicher, Spears & Postmes, 1995). In online environments, users are physically isolated from one another unlike when face-to-face where two individuals must be co-present to interact. Consequently, online environments

tend to be more anonymous than when face-to-face because there are fewer identity cues that can differentiate users from one another and that relate their online persona with their identities outside of that environment (Coleman, Paternite & Sherman, 1999; Hancock & Dunham, 2001; Lea, Spears & de Groot, 2001; Mileham, 2007; Spears & Lea, 1992; Walther, 2007).

Despite a scarcity of uniquely-identifying identity cues, the SIDE model predicts that detailed impressions can still be formed from encounters in online environments by an overreliance on any remaining identity cues to assign users to social categories from which stereotypes are drawn to form an impression (Lea & Spears, 1992). Categories can be assigned based on the remaining identity cues emerging from the user's own behaviour including their linguistic style or content, from the behaviour of others in the same online environment, or from already-held stereotypes about users in the online environment (Hancock & Dunham 2001). In contrast to the cues-filtered out perspective which predicts that the content of impressions would be limited, the SIDE model predicts that impressions formed in online environments tend to be detailed albeit exaggerated because of an overreliance on a limited set of identity cues compared to when face-to-face (Lea & Spears, 1995; Reicher, Spears & Postmes, 1995). Due to the absence of identity cues to the contrary, the SIDE model predicts that inaccurate stereotyped characteristics will not necessarily be rejected and instead would form part of that impression (Hancock & Dunham, 2001).

The SIDE model's prediction of exaggerated impressions is supported insofar that both Walther (1997) and Hancock and Dunham (2001) demonstrated that participants used a much wider range of scores when making judgements of extraversion after instant messaging encounters compared to when face-to-face.

The wider range of scores was indicative of exaggerated impressions because users interacting in instant messaging made greater use of the extreme ratings on the extraversion scale rather than the scores that were closer to the median, despite the content discussed in the online and offline interactions being similar. The findings reject a cues-filtered out perspective which would have expected neutral impressions as would have been indicated through a concentration of scores around the median of the extraversion scale which was not apparent (Hancock & Dunham, 2001). The exaggerated impression prediction also implies that impressions from online encounters should be less accurate compared to face-to-face encounters because inaccurate characteristics that were overgeneralised from stereotypes would be less likely be identified and rejected in online environments due to the lower availability of identity cues to the contrary.

SIDE model may offer some promising insight in the context of the privacy settings on social network sites. Privacy settings segregate access to a profile owner's content for certain users and user groups (Georgalou, 2016; Marder, Joinson & Shankar, 2012; Vitak, Blasiola, Patil & Litt, 2015; Stutzman & Kramer-Duffield, 2010). Most profile owners restrict access to the photographs and written status updates shared on their profile page whilst leaving public access to a more limited set of content including their name, their profile photograph and the name of the city that they are from (boyd & Hargittai, 2010; Dey, Jelveh & Ross, 2012; Madden, 2012; Madden & Smith, 2010; Marwick, Diaz & Palfrey, 2010; Stutzman, Gross & Acquisti, 2013). The segregation in content using privacy settings means that only some users would have comprehensive access to a particular profile page and the wide range of

identity cues that could differentiate the profile owner from others. Based on the SIDE model, impressions formed from the limited, publicly accessible identity cues will instead be more exaggerated compared to impressions formed from more the comprehensive identity cues that are protected by privacy settings. To date, no research study has tested the predictions of SIDE theory in the context of privacy settings on social network sites.

However, the model might be less relevant to social network sites beyond the effect of privacy settings impressions. The anonymity on social network sites is limited insofar that profile pages often mention users' full names, contain photographs of users, and depict interaction amongst users with established relationships outside of the websites (Zhao, Grasmuck & Martin, 2008). The less anonymous, cue-rich nature of social network sites makes users more distinguishable from one another than chatrooms, email and other cue-lean online environments (Halpern & Gibbs, 2013). Consequently, the SIDE model would predict that impressions formed from social network sites will be less exaggerated than they are in more anonymous online environments such as chatrooms.

In contrast to the SIDE model, proponents of the Social Information Processing Theory (SIPT) suggest that users adapt to the limited identity cues in online environments by relying on alternative cues systems to form their impressions (Walther, 1992, 2008). When interacting face-to-face, individuals make inferences about others based on non-verbal means such as facial expression, body positioning, eye contact and intonation (Walther, 2008). In online environments, individuals do not necessarily have access to those same identity cues so rely on alternative cue systems from which similar meaning can

be inferred including linguistic style, content features or chronemic factors such as message timestamp, or message reply delay (Farrer & Gavin, 2009; Mantovani, 2001; Walther, 2006; Walther & D'Addario, 2001; Walther & Tidwell, 1995).

The SIPT predicts that impression formation in online environments can be as detailed as when face-to-face although may take a longer time to achieve that same level of detail (Dennis & Kinney, 1998; Walther & Burgoon, 1992). The prediction has been supported in several studies (e.g. Walther, 1993; Walther, Slovacek & Tidwell, 2001). Walther (1993) demonstrated that participants interacting via instant messaging formed impressions of each other that were as detailed as the impressions formed by participants interacting face-to-face although the instant messaging interactions took significantly longer to reach the same level of detail as face-to-face. Notably, Walther's findings reject the cues-filtered out perspective which would predict that the detail of impressions should not improve over time because identity cues are either not communicated or any cues that are communicated should be of little use to forming impressions.

People tend to be more confident in their impressions when they can make predictions about the behaviour, attitudes, and motivations of the person about whom their impression was formed (Berger & Calabrese, 1975; Brewer, 1988; Clatterbuck, 1979). Given the increasing level of detail available to make predictions, SIPT can be extrapolated to make inferences regarding the confidence that people have in their impressions insofar that people should eventually be as confident about their impressions formed from online encounters as they are from face-to-face encounters although that confidence

themselves that others would have difficulty verifying (Becker & Stamp, 2005; Caspi & Gorsky, 2006).

The anonymity of chatrooms and other online environments is inappropriate for social network sites where users can be identified by photographs of themselves (e.g. Zhao, Grasmuck & Martin, 2008). However, the Hyperpersonal Model suggests that selective self-presentation is also easier in online environments because communication is asynchronous insofar that users can send and respond to messages and craft their identity at their own pace rather than having to act instantly in real time (Walther, 1996; 2007). Similarly, content in some online environments like social network sites is editable and can be modified after being shared (boyd, 2010; Walther, 2007). The asynchronous and editable nature of interactions in social network sites enables users to rededicate cognitive resources that would otherwise be used to monitor their own behaviour in the faster-paced, real-time interactions that typify encounters that are face-to-face or via video conferencing (Walther, 1996; Walther, 2007). Users can instead use their cognitive resources for planning, constructing, modifying and self-censoring content to present themselves in a socially desirable manner to others (boyd, 2010; Das & Kramer, 2013; Ellison, Hancock & Toma, 2012; Marder, Joinson, Shankar & Houghton, 2016).

As impressions are partially formed from the identity cues available, the Hyperpersonal Model predicts that the desirable, selective presentations afforded by visual anonymity, asynchronicity and editability will also result in users forming more idealised impressions than those formed from face-to-face encounters. The prediction has been evidenced in a range of online environments. In terms of those idealised identity cues resulting in idealised

may take a longer time to achieve from online encounters. Though not tested on social network sites, the prediction is supported by Walther and Tidwell (2001) who demonstrated that participants did not differ in the extent that they were confident about their impressions of others between face-to-face and instant messaging when participants had longer to get to know each other via instant messaging compared to face to face. Impression taking longer to form has implications during early stages of a relationship. In the short-term, strangers may form less accurate impressions and treat those impressions with less confidence when formed from online encounters rather than face-to-face although that disadvantage would be progressively narrowed after having more online encounters.

Although the SIDE model and SIPT highlight that content and confidence of impressions may differ between online and face-to-face encounters, both fail to account for the greater ability to strategically construct identities in many online environments compared to face-to-face. In the Hyperpersonal Model, Walther (1996) proposed that online users can present themselves in a more socially desirable manner due to the visual anonymity, asynchronicity, and editability afforded in many online environments and which are unavailable when face-to-face. In terms of anonymity, many online environments allow users to mask some of the involuntary cues to their identity outside of the environment (Suler, 2004). Users can compose and exchange messages in physical isolation from each other and can do so without having to present themselves visually (Walther, 2007). Given the lack of visual cues to their identity, users of online environments such as chatrooms can make idealised identity claims about

impressions, both Walther (1997) and Hancock and Dunham (2001) demonstrated that participants used a much more extreme set of scores when making judgements of extraversion about others that they had encounter in a chatroom compared to face-to-face encounters.

The Hyperpersonal Theory, however, does not account for users' scepticism about their impressions from encounters in online environments. Warranting Theory proposes that identity cues perceived as more verifiable and less open to manipulation are attributed greater weight when forming impressions than identity cues perceived as less verifiable and more malleable (Stone, 1995; Walther & Parks, 2002). The theory has been supported by a range of research studies that demonstrate that people are more sceptical and less likely to use identity cues to form impressions when those cues are at greater risk of being misrepresented (Antheunis & Schouten, 2011; Jin, 2013; Utz, 2010; Walther, Van Der Heide, Kim, Westerman & Tong, 2008). Users may be aware of the propensity for self-enhancement that arises from editability and asynchronicity of content in online environments. The expectation amongst users that others present themselves in an idealised manner online could dampen the effect that idealised identity cues have during the impression formation process. For example, online daters tend to be sceptical about their impressions formed from the websites because they believe that the identities presented on the websites are idealised to attract future romantic partners and that users can more easily manipulate their identities online compared to face-to-face encounters (Ellison, Hancock & Toma, 2011; Heino, Ellison & Gibbs, 2010). Consequently, the same features for selective presentation afforded by online environments may



also mean that people are more sceptical of their impressions formed from those environments compared to face-to-face encounters.

Overall, a range of theories pertain to whether people can form impressions in online environments and whether those impressions are likely to be accurate and confident. The cues-filtered out perspective implies that impressions in online environments are difficult to form although the perspective is largely rejected given a range of research which demonstrates that people can form impressions and that many of those impressions can be as accurate and detailed as impressions formed from face-to-face encounters. A review of evidence underlying the SIDE Model, SIPT and Hyperpersonal Model demonstrated that the availability of identity cues can feasibly lead to more idealised, more stereotyped and less detailed impressions in online environments compared to when face-to-face although the extent of the discrepancy may depend on the nuances of the online environment within which impression formation takes place. However, those theories do not account for the role that verifiability and the awareness of self-presentation norms in online environments has on impression formation.

#### *Type of information seeking strategy*

People try to get to know each other using at least three strategies: passive, interactive and active strategies (Berger, 1979). Typically, researchers have explored whether Berger's (1979) three strategies are linked to how confident people are in their impressions about each other and in particular their ability to predict others' behaviour and attitudes: a concept known as social certainty (Clatterbuck, 1979; Sunnafrank, 1986). For example, passive (Berger & Douglas,

1981; Berger & Perkins, 1978), active (Hewes, Graham, Doelger, & Pavitt, 1985) and interactive (Berger & Kellerman, 1983; Kellerman & Berger, 1984) strategies have been associated with greater social certainty about other people; people using those strategies are more confident in their impressions of others. The interactive strategy is also more strongly linked to how confident a person is about their impressions than for the passive and active strategies (Emmers & Canary, 1996; Kellerman & Berger, 1984).

The stronger link for interactive strategy over the passive and active strategies may be explained by differences in how identity cues are processed by the strategies. Several researchers have proposed that impression formation involves two processes known as individuating and categorising. Individuating requires a high level of cognitive effort and involves the formation of tailored impressions after an in-depth reconciliation of the inconsistencies and nuances between identity cues (Fiske, Lin & Neuberg, 1999; Hamilton & Sherman, 1996; Neuberg & Fiske, 1987). Comparatively, categorising requires much less cognitive processing and the resultant impressions tend to be less tailored because they are based upon broad stereotypes elicited from the available identity cues (Fiske, Lin & Neuberg, 1999). Categorising tends to ignore identity cues that are contrary to a particular stereotype whereas individuating reconciles those conflicting identity cues.

People tend to be more confident in their impressions when they can make predictions about the behaviour, attitudes, motivations of the person about whom their impression was formed (Berger & Calabrese, 1975; Brewer, 1988; Clatterbuck, 1979). The greater tailoring afforded by individuating may result in higher confidence because the resultant impressions contain more distinguishing

information for predicting the behaviour, attitudes, motivations of the person about whom an impression was formed. The diminished, general detail afforded by categorising may result in lower confidence because the resultant impressions contain less distinctive information from which predictions could be made.

An interactive strategy may be more suitable for individuating than the passive and active strategies which in turn could affect how confident people are about their impressions. The suggestion that individuating is more suited to an interactive strategy compared to passive and active strategies is based on inconsistent identity cues being processed in a different manner than consistent identity cues. Fiske and Neuberg (1990) proposed that the cognitively effortful process of individuation is more likely when people are faced with inconsistent identity cues about others. When there are fewer inconsistencies in identity cues, people tend to engage in the less cognitively effortful process of categorisation to form impressions of others which is likely to result in more general, less tailored impressions (Fiske, Lin & Neuberg, 1999).

An individual using an interactive strategy may have access to a more inconsistent set of identity cues compared to passive and active strategies because of the strategic control that users have when using the interactive strategy. Berger (1979) suggested that an interactive strategy allows people greater control over the identity cues that they can access when getting to know others compared to when they use passive and active strategies. For example, an individual can strategically designate the conversation topics with their communication partner (Berger, 1979). Such control allows an individual to draw upon identity cues about the other person across a range of controlled contexts (e.g. asking about their new housemate's friends, hobbies from home,

previous educational experiences, and their opinions and attitudes towards university). Similarly, an individual can ask the other person probing questions, or deliberately self-disclose specific information about him or herself with the intention of reciprocating self-disclosure from that other person (Antheunis, Valkenburg & Peter, 2010; Joinson, 2001). Such control may enable an individual to elicit identity cues that are detailed, particularly intimate and which they might not otherwise have had access if they had not interacted with the person about whom they are trying to form an impression (Cozby, 1973; Joinson, 2001; Moon, 2000). An abundant, diverse set of identity cues is more likely to contain inconsistencies than a sparse, less diverse set of identity cues because there are more identity cues that can potentially conflict. Consequently, an abundant and diverse set of identity cues are therefore more amenable to the development of tailored impressions through individuating than a sparse, less diverse set of individual cues which are more amenable to the development of generalised impressions that emerge through categorising.

Comparatively, passive and active strategies may not offer as much stringent control over the types of identity cues that they can access. An individual cannot easily control the detail or range of cues that are elicited about others when he or she is only observing (e.g. a passive strategy) or getting to know others through third parties (e.g. an active strategy as a third party mutual friend). Instead, the identity cues elicited through passive and active strategies are likely to be less detailed, less diverse and therefore exhibit fewer inconsistencies making them amenable to the less cognitively effortful process of categorising rather than the more cognitively demanding process of individuating. In turn, the more tailored, specific impressions that result from

individuating may lead to a people being more confident in their impressions formed from an interactive strategy compared to impressions formed from passive and active strategies which may rely more upon categorising and are more general.

An alternative explanation for the superiority of the interactive strategy is also possible. People tend to be more confident about identity cues that are verifiable than identity cues that are not (Walther, 2011). The control afforded to an interactive strategy may impact how confident people are about their impressions without resorting to categorising and individuating processes but instead may enable an individual to more easily verify identity cues than when using either passive or active strategies. The more diverse, detailed set of identity cues elicited by an interactive strategy may allow an individual to confirm or refute the credibility of particularly identity cues that would otherwise be difficult to verify. For example, an individual could try to present him or herself as very intelligent. The individual's intelligence could be confirmed or refuted by asking that individual questions about a diverse range of topics or about their education history. Questioning could target identity cues relevant to intelligence which would be comparatively more difficult to achieve with passive and active strategies where there is less direct interaction with the individual or manipulation of the environment in which that individual is situated.

Both explanations are feasible for understanding why interactive strategies are linked to people being more confident about their impressions compared to passive and active strategies face-to-face or in chatrooms, via email or instant messaging environments. However, the explanations may not be perfect when considering more contemporary online environments such as social

network sites which afford a diverse set of identity cues when using a passive strategy. Through photographs and wall posts, people can view identity cues across a range of scenarios and over a significant period. Further research is required to explore whether either proposed explanation is appropriate for social network sites and online environments more generally.

Research investigating how confident people are in impressions formed from online environments is more limited than from meeting face-to-face. Researchers have typically explored Berger's (1979) three information seeking strategies in the context of encounters on traditional online environments such as instant messaging and email (e.g. Pratt, Wiseman, Cody, & Wendt, 1999; Tidwell & Walther, 2002; Westerman & Tamborini, 2006). Traditional online environments fail to represent the multi-authored, content heavy, multi-media nature of more contemporary online environments such as social network sites. Consequently, there is limited understanding of how the passive, active and interactive strategies are involved in impression formation on social network sites. Of the research conducted on traditional online environments, most researchers have examined the strategies for instant messaging and email encounters, limiting their investigations to only an interactive strategy at the expense of passive and active strategies. For example, researchers have demonstrated that an interactive strategy can be used to make people more confident about their impressions formed from instant messaging but at a much slower rate compared to face-to-face (Tidwell & Walther, 2002). Very little is known about passive and active strategies in traditional online environments.

Research comparing the three strategies has been conducted for contemporary online environments including social network sites although the

research remains limited in scope. Only two studies at the time of this review had explored how the passive, interactive and active were linked to how confident people are about their impressions of others formed from social network sites.

Courtois, All and Vanwynsberghe (2012) conducted a questionnaire study that focused on how adolescents aged between fifteen and seventeen years formed impressions of their close friends and their more distant friends with whom they had weaker friendships. Using a combination of passive and interactive strategies on social network sites was linked to the adolescents being more confident about their impressions of the close friends and their distant friends. However, the relationship between the strategies and how confident the adolescents were in their impressions was stronger about their distant friends than about their closer friends. Courtois et al.'s finding is likely explained by adolescents gleaning little new information when viewing and interacting with their close friends on social network sites because any information is already known from regular contact through other avenues including such as face-to-face or text messaging, unlike their contact with more distant friends which relied more on social network sites. Courtois et al.'s study is of limited use for understanding the role that the passive and interactive strategies play in impression formation because the researchers combined the two strategies into a single measure of 'information seeking'. The researchers did not distinguish the two strategies from one another. Furthermore, Courtois et al. explored established social relationships rather than emerging social relationships.

However, Antheunis, Valkenburg and Peter (2010) conducted a study differentiating between the strategies and focusing on emerging social relationships. The researchers conducted an online questionnaire study exploring

impressions in new relationships, specifically how users formed impressions about a new acquaintance that they had met on the Hyves social network site in the preceding thirty days with whom there had been no previous encounter. Only an interactive strategy, such as sending private messages on a social network site, was linked to how confident the individuals were about their impressions of their new acquaintances. The more that an individual used an interactive strategy, the more confident that he or she was about their impressions of that new acquaintance. Active and passive strategies were not linked to how confident individuals were about their impressions.

Antheunis et al.'s (2010) finding that a passive strategy was not linked to an individual's confidence in his or her impression about a new acquaintance was striking given the research studies that suggest people can form impressions from viewing a person's profile page on a social network site. Antheunis and Schouten (2011) and Walther et al. (2008) demonstrated that people form impressions of another person based on the attractiveness of that person's Facebook friends. Similarly, Walther et al. (2008) reported that people could form impressions of another person based on the comments and wall posts made by that person's friends. The impressions in both cases are based on online content that would be accessed by a passive strategy insofar that there would be no direct interaction between the person forming the impression and the person about whom the impression was being formed.

An explanation that could reconcile the difference in findings between the studies is that Antheunis et al. failed to consider a meaningful scenario in which participants first met on a social network site. Common social scenarios include students getting to know their new housemates and classmates before



starting at a course at university, employees getting to know their new colleagues before starting a new job, or daters getting to know a potential new romantic partner. However, Antheunis et al. did not explore any of those common social scenarios that exemplify the initiation of friendships on social network sites instead focusing on an ad-hoc initiation of friendship connections.

The decontextualized nature of the scenario considered in Antheunis et al.'s study is pertinent because people tend to make relatively little effort to use strategies to get to know others when there is little expectation of future interaction (Douglas, 1987; Kellermann & Reynolds, 1990). In the social scenario examined by Antheunis et al., participants may have had very low expectations that they were going to meet their new acquaintance face-to-face or that there would be any frequent and meaningful interaction in any environment in the long-term future. The participants' low expectations for future interaction may have dampened how prevalent and useful the passive strategy (or any strategy) was when forming impressions of their new acquaintance that they were getting to know on social network sites. Such low expectations could explain why the passive strategy was not linked to how confident participants were about their impressions but such a link was found by other researchers investigating different online environments such as instant messaging and email (e.g. Pratt, Wiseman, Cody, & Wendt, 1999; Tidwell & Walther, 2002; Westerman & Tamborini, 2006)

Given the limitations and lack of existing research, there is only a limited scientific understanding of how Berger's (1979) three strategies are linked to how confident people are in their impressions of each other during the early stages of a relationship on social network sites. The existing research focuses on

environments that are difficult to directly apply to more modern social network sites, or do not involve ecologically valid social scenarios in which people commonly and meaningfully get to know each other for the first time on social network sites.

#### *Source of identity cues*

Impressions are influenced by the source of identity cues that people encounter, namely whether the identity cues are self- or other-generated. Self-generated identity cues are those cues that are intentionally or unintentionally generated by a person about him or herself (Walther & Parks, 2002). An example includes any identity cues about a person from his or her Facebook wall posts, status updates, comments, photographs, and self-defined likes and activities (Hall, Pennington & Leuders, 2014). Other-generated identity cues are authored by other sources such as a person's friends and colleagues. For social network sites, examples include any identity cues about a person from Facebook wall posts, comments and photographs that are posted by his or her friends (DeAndrea, 2012).

The distinction between self- and other-generated identity cues is relevant to elucidating the distinction between passive and active strategies described earlier in this literature review. As discussed, a passive strategy involves encounters whereby an individual unobtrusively observes others though without any direct interaction (Berger & Bradac, 1982). The identity cues accessed using a passive strategy, such as the cues present in the status updates and profile images posted by a user on his or her profile page, would be considered self-generated cues. In comparison, an active strategy is more indirect and involves encounters whereby an individual proactively elicits information about others

without direct interaction with them (Baxter & Wilmot, 1984). The identity cues accessed using an active strategy, such as the cues present in the photographs and comments posted by a profile owner's friends and family, are other-generated identity cues because the cues are relevant to forming impressions about the profile owner but which were not actively shaped by him or her.

Both self- and other-generated identity cues are important in forming impressions from social network sites (Antheunis & Schouten, 2011; Jin, 2013; Utz, 2010). With self-generated cues, an impression that a person is narcissistic is often formed when his or her profile photograph is perceived as more attractive and self-promoting (Buffardi & Campbell, 2008). Narcissism is characterised by a grandiose sense of self-importance, uniqueness and entitlement coupled with a preoccupation for success and admiration and a negative response to criticism, the indifference of others, or defeat (Ames, Rose & Anderson, 2006). With other-generated cues, the impression that a person is attractive is often formed when his or her Facebook friends are also perceived as being physically attractive as gleaned from their photographs that are visible on the profile owner's Facebook wall (Walther, Van Der Heide, Kim, Westerman & Tong, 2008). Additionally, the impression that a person is extraverted is often formed when their Facebook friends appear more social and outgoing in their wall posts and photographs (Walther, Van Der Heide, Kim, Westerman & Tong, 2008), and that a person is more conscientious when his or her friends express emotional support in wall posts and comments on his or her Facebook profile page (Hall & Pennington, 2013). Similar findings have been reported for face-to-face encounters (Holland & Skinner, 1987).

Although self- and other-generated identity cues influence impressions, other-generated identity cues tend to be given more weight when forming impressions than self-generated cues (Antheunis & Schouten, 2011; Walther, Van Der Heide, Kim, Westerman & Tong, 2008). Facebook wall posts on a person's profile page written by his or her friends are more influential on the final impression than similar posts shared by the person themselves (Hong, Tandoc, Kim, Kim & Wise, 2012; Walther, Van Der Heide, Hamel & Shulman, 2009). The findings may be explained by Warranting Theory which proposes that identity cues perceived as more verifiable and less open to manipulation are attributed more weight when forming impressions than identity cues perceived as less verifiable and more malleable (Stone, 1995; Walther & Parks, 2002). Self-generated content, such as wall posts and status updates, tends to be perceived as easier and offering a greater vested interest for manipulation by a profile owner than other-generated content, such a wall posts or comments by his or her friends (Walther, Van Der Heide, Hamel & Shulman, 2009).

Warranting Theory and the research outlined in the preceding paragraph may also be relevant when distinguishing between Berger's (1979) private and active strategies outlined earlier in this review. On social network sites, a private strategy involves encounters with a profile owner themselves whereas an active strategy involves encounters with people that known the profile owner (e.g. friend and family; Antheunis, Valkenburg & Peter, 2010). The two strategies may differ in the strength of their influence on impression formation because the passive and active strategies will have access to self- and other-generated identity cues, respectively. Impressions formed from the self-generated identity cues accessible to a passive strategy may be treated with more scepticism, be

attributed less weight and appear less prominently in any resultant impressions than other-generated identity cues accessed using an active strategy.

A specific type of other-generated identity cues, known as a system-generated cue, are automatically produced by the social network site software using a computational algorithm (Tong, Van Der Heide, Langwell & Walther, 2008). A common system-generated cue that influences impression formation is an indicator listing the number of friends or acquaintances that a person has on a social network site (Tong et al., 2008; Utz, 2010). The more friends that a person has, then the more extraverted, attractive and popular he or she is viewed by others (Tong et al., 2008; Utz, 2010). The relationship between the number of acquaintances and positive evaluation in Tong et al.'s and Utz et al.'s studies was parabolic, however; people perceived to have 'too many' friends were evaluated negatively.

Researchers have yet to explore whether system-generated cues are more influential than self- and other-generated cues. However, evidence suggests that impressions can be influenced by an interaction between system- and other-generated cues. When the wall posts on a person's Facebook profile page indicated that he or she has introverted friends, then that person was perceived as more socially attractive when he or she had fewer friends (Utz, 2010). When wall posts indicated that a person has extraverted friends, however, then there was no impact of the number of friends on ratings of his or her social attractiveness (Utz, 2010).

Most research into self-generated and other-generated identity cues has involved participants viewing mock profile pages designed to look like a profile from a social network site (e.g. Antheunis & Schouten, 2011; Van Der Heide,

D'Angelo & Schumaker, 2012; Walther et al., 2009, Utz, 2010). The researchers often failed to induce any expectation of participants having a future meeting with the person depicted in a mock profile page, and the participants often had no motivation to get to know others. As previously discussed, these circumstances fail to represent the common scenarios in which people encounter each other for the first time on social network sites. New university students often meet each other on social network sites in the weeks prior to starting university (e.g. Alemán & Wartman, 2008). The students have a motivated context for their encounters and an expectation of future interaction when forming impressions. The process of impression formation for those students about to start university is likely different than participants in research studies viewing mock profiles where there is no meaningful, motivated and ecologically valid social scenario underlying why participants are viewing the profiles. Without future research involving more motivated and meaningful social scenarios, the utility of studies exploring identity cues may be limited for understanding how people get to know each other for the first time on social network sites.

#### *Content of identity cues*

Impressions are influenced by the *content* of the identity cues that encountered on social network sites including action, chronemic, social connection and attractiveness cues. Each of those cues will be considered in turn.

People form impressions from action cues, observing the location and type of activities that others are depicted as engaging in from their tagged photographs, wall posts, or status updates that are posted on social network sites (Hall & Pennington, 2013; 2014). People whose photographs depict active

hobbies and activities in sociable locations are perceived by others to have more humour-oriented personalities (Hall & Pennington, 2014). A person with humour-oriented personality is perceived as very humorous and funny, employing humour and comedy as a significant part of their social interactions with other people (Booth-Butterfield & Booth-Butterfield, 1991; Prasinis & Tittler, 1981).

Similarly, people form impressions about a person's personality status updates. People that mention family and positive mood in their status updates tend to be perceived as more conscientious and honest (Hall & Pennington, 2013). A person with a conscientious personality is considered thorough, careful, or vigilant with a desire to complete tasks in a successful, organised and efficient manner (Costa & McCrae, 1991; Norman, 1963; Roberts, Chernyshenko, Stark & Goldberg, 2005). Similarly, people that post status updates and other media that reference political sentiments are perceived as more open to experience by others (Hall & Pennington, 2013). Openness to experience is characterised by a preference for variety, curiosity, active imagination, aesthetic sensitivity and attentiveness to inner feelings (McCrae, 1994; McCrae & Costa, 1997; McCrae & Sutin, 2009).

Researchers have also suggested that people tend form impressions from a specific type of action cue known as a chronemic cue (Walther & Tidwell, 1995). Chronemic cues give an indication of timing, such as the message timestamp that a message was sent or the length of delay in replying to a message. On social network sites, people have access to numerous chronemic cues that are useful for forming impressions about others. For example, people that post more frequently and post profile pictures at an earlier age tend to be

perceived as more extraverted (Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011; Hall & Pennington, 2013). Extraversion is characterised by a person being outgoing, keen for interaction and energetic as opposed to introversion which is characterised by being more reserved and solitary (Eysenck & Eysenck, 1963; Wilt & Revelle, 2009). Similarly, people who post very frequently on their Facebook profile page tend to be perceived as more narcissistic (Buffardi & Campbell, 2008) and neurotic (Hall & Pennington, 2014). Narcissism is characterised by a grandiose sense of self-importance, uniqueness and entitlement coupled with a preoccupation for success and admiration and a negative response to criticism, the indifference of others, or defeat (Ames, Rose & Anderson, 2006; Morf & Rhodewalt, 2001; Raskin & Terry, 1988). Neuroticism is characterised by a low tolerance for stress and a tendency to react to ordinary situations with anxiety, fear, irritability, anger, and sadness (Barlow, Ellard, Sauer-Zavala, Bullis & Carl, 2014; Eysenck, 1947; Goldberg, 1993).

People form impressions about a person based on their connections with other people, including how others socially interact. People tend to be perceived as more conscientious and honest when their friends respond to their status updates with emotional support and agreement (Hall & Pennington, 2013). Similarly, people with friends that frequently like and comment on their status updates tend to be perceived as having a more humour-oriented personality (Hall & Pennington, 2013). Impressions are influenced not only by the actions of their social connections, but also by whom those people are that a person is seen to be interacting with on a social network site. For example, people who are depicted in Facebook photographs with larger groups tend to be perceived as more extraverted (Antheunis & Schouten, 2010; Tong, Van Der Heide, Langwell &



Walther, 2008). Furthermore, people are likely to perceive that a person is more attractive and narcissistic when his or her Facebook friends were also more physically attractive (Hall & Pennington, 2013; Walther, Van Der Heide, Kim, Westerman & Tong, 2008).

Impressions are also affected by the physical appearance of the person themselves. People who post attractive Facebook photos of themselves tend to be perceived as more agreeable irrespective of whether that impression is accurate or not (Hall & Pennington, 2013). The finding matches offline findings that attractive people tend to be perceived as more agreeable (Borkenau & Leibler, 1992). Agreeableness is characterised by a person being likeable, pleasant, and harmonious in social relations with others (Costa, McCrae & Dye, 1991; Graziano, Jensen-Campbell & Hair, 1996; Graziano & Renée, 2009). The finding that physical appearance is important when forming impressions online also extends beyond attractiveness. For instance, people tend to be perceived as narcissistic when posting sexually provocative profile pictures that show more skin or in sexualised poses (Hall & Pennington, 2013).

A plethora of research suggests that identity cues can influence the types of impressions that people form about each other irrespective of whether those cues are action, chronemic, social connection or physical attractiveness in nature. Given that most research involving impressions formed from identity cues asks participants to based their impressions on mock profiles, the findings in those studies may not be representative of how people form impressions of each other on a day-to-day basis.

*Modality of identity cues*

Impressions are influenced by the modality of identity cues that encountered on social network sites, namely whether the identity cues are from visual or written content. Van Der Heide, D'Angelo and Schumaker (2012) reported that when presented separately, identity cues from written content (i.e. autobiographical descriptions in the 'About me' section; comments, listed preferences/likes) more strongly influenced impressions of a person's extraversion than identity cues from photographic content (i.e. profile photographs). Van der Heide et al.'s finding was only apparent when written and visual content were presented separately, however, which does not represent the experience of viewing profile pages on social network sites where visual and textual content are instead presented together. For example, a Facebook profile page contains both visual content (e.g. profile images, tagged photographs) and textual content (e.g. comments, listed preferences/likes).

When presenting visual and written content together, Van Der Heide et al. (2012) reported that impressions depended on how the visual and written cues conflicted. When a profile photograph already suggested that a profile owner was extraverted, written content did not influence participant's impressions of extraversion at all (Van Der Heide et al., 2012). The finding suggests a visual primacy effect whereby photographs have a greater impact on impressions than other modalities including written text but also auditory (Burgoon, 1994). When a profile photograph suggested that a profile owner was *introverted*, however, written content depicting extraversion led to more extraverted impressions of the profile owner than when the written content suggested introversion.

Van Der Heide et al.'s study suggests that whilst visual primacy may be important in impression formation, the extent that an identity cue matches the norms and ideals of an environment also may be important. The dominance of the written introversion cue over the photographic extraversion cue may result from a norm of extraversion and sociability established on social network sites. The websites have features that encourage displays of social activity (e.g. photographs, status updates, location check-ins, tagging of friends) and encourage social interaction (e.g. wall posts, comments, 'likes'). The displays of social activity and interaction may result in social network sites containing an abundance of cues pertaining to extraversion and high sociability resulting in the development of a stereotype that users of social network sites are extraverted. The dominance of identity cues conveying extraversion may also have been exacerbated given Western cultural ideals of sociability and outgoingness being positive attributes to aspire toward (Lynch, La Guardia & Ryan, 2009; Merenda, Clarke, Schulz, Strehse & Winneke, 1969).

On social network sites, the abundance of identity cues depicting extraversion may result in identity cues depicting introversion becoming more noticeable and unique given their comparative paucity. The Continuum Model of Impression Formation suggests that identity cues violating held stereotypes will more significantly alter the content of any impressions than identity cues that confirm the stereotype (Fiske & Neuberg, 1990). When faced with identity cues that violated a stereotype, any resultant impressions will likely integrate the violating identity cue (e.g. introversion) and become less representative of the stereotype (e.g. extraversion; Fiske & Neuberg, 1990).

If the proposed explanation is accurate, then the extent that the same effects may be observed outside of social network sites should depend on the norms and ideals apparent in other environments. For example, the same effect may be weaker or not observed at all in online forums that are dedicated to interaction about a topic (e.g. dedicated to pilots or dogs). In those forums, the norms and ideals may instead emphasise in-depth knowledge about the dedicated subject (e.g. flying, dogs) therefore sociability is less prominent and diagnostic to any stereotype developed about people using that environment. Similarly, the effect may be weaker or non-existent in dating websites which do not encourage sociability to the extent of social network sites. Instead, dating websites encourage users to focus on individuality, trustworthiness and being very forthcoming with intimate insights into themselves (Whitty, 2008). Consequently, impression formation in online dating may be more affected by identity cues that conflicts with individuality, trustworthiness, intimacy and being forthcoming than conflicts with sociability. Irrespective of norms local to an environment, however, a Western cultural ideal of extraversion over introversion could persist amongst those constructing their identities and those forming impressions in an online or face-to-face environment. Conflicts concerning extraversion in some environments including face-to-face therefore the effect may still be apparent in weaker form in many online environments, particularly amongst those involving Western cultures that celebrate extraversion and sociability. Further research is required to confirm the proposed explanation.

In addition to future research on specific explanation, it is important to recognise that future research is required on the influence of identity cue modality on impression formation more generally. The research described has

failed to offer participants a meaningful social scenario when viewing those mock social network site profiles. Consequently, more research into impression formation is required to understand how people get to know each other on social network site using applied, relevant scenarios.

## **Conclusion**

This literature review identified the features and prevalence of social network sites and outlined research describing how people get to know each other during the early stages of a relationship on the websites. The review highlighted a conceptual model that could be applied from face-to-face meetings to social network sites in future research. Without that future research, however, there remains a sparse empirical understanding of the methods that people use to get to know each other on social network sites.

Comparatively, the research literature exploring impression formation on social network sites is more developed focusing on how different identity cues can influence the types of impressions that people form about each other on social network sites. However, the methods and social scenarios employed to research impression formation on social network sites fail to offer an ecologically valid representation of impression formation in a common, meaningful initial encounter scenario. Further research is required to explore impression formation on social network sites in a more meaningful, ecologically valid scenario than has been reported to date.

### **Chapter 3 – Exploring the types of impressions that people form about each other from social network sites in an applied scenario**

#### **Introduction**

In Chapter 2, a literature review identified that research exploring impression formation on social network sites involves uncommon, ecologically invalid scenarios that fail to incorporate the motivation, concerns and context inherent to impression formation on a day-to-day basis. Research requires more ecologically valid, applied social scenarios to provide a more representative account of impression formation.

In a response to that call, this study explored impression formation on social network sites in an applied scenario, namely how students form impressions about each other in the weeks prior to starting university. During those weeks, incoming undergraduate students can use social network sites to find and meet others who are also starting at the same university (Alemán & Wartman, 2008). For many students, encounters on social network sites are the first time that they meet each other.

In the weeks prior to starting university, students expect a considerable future interaction with the peers that they meet on social network sites given that share the same physical environment once having arrived at university. The expectation is important when researching impression formation during the early stages of a relationship. People expend more effort getting to know somebody with whom they expect future interaction compared to somebody with whom they expect little future interaction (Kellermann & Reynolds, 1990). However, most tasks used by researchers investigating impression formation on social

network sites do not elicit any expectation of a future interaction (see the literature review in Chapter 2 for a list of studies). Such a scenario without future interaction is unlikely and ecologically invalid. There are so few instances that people would meet each other on a social network site without any reason to get to know each other in the future. Consequently, the university transition scenario offered the opportunity to explore impression formation on social network sites in a more common, ecologically valid scenario because students have a genuine expectation of meeting each other in the future.

Incoming students also experience a wide range of concerns and worries about university including if they will succeed academically at university and if they will be liked by their peers (Brooks, 2005). Most tasks used by researchers investigating impression formation on social network sites do not involve scenarios that involve any worries. In the university transition scenario, worries are important to providing an ecologically valid scenario of the early stages of a relationship compared to the artificial, ecologically invalid scenarios used in the majority of studies identified in the literature review in Chapter 2.

Worries are an important part of impression formation during university for numerous reasons including impressions resulting from social comparison processes, affecting the identity cues that are attended towards, affecting self-presentation behaviour which in turn can affect others' impressions, and being conceptualised as impressions. Each reason is considered in turn.

Individuals understand themselves by making comparisons between themselves and other people (Festinger, 1954; Haferkamp & Krämer, 2011; Johnson & Knobloch-Westerwick, 2014; Kruglanski & Mayseless, 1990; Lee, 2014; Suls, Martin & Wheeler, 2002). When individuals make comparisons

between themselves and others, they form impressions of both themselves and the people to whom they are comparing themselves. If the comparison yields a significant mismatch between the individuals and the people to whom they are comparing then they may perceive themselves negatively and worry about their ability to succeed especially if the individual perceives themselves as being inferior to the other people on some attribute (Aspinwall, 1997; Buunk, Kuyper, & Van der Zee, 2005; Collins, 1996; Gibbons, 1986; Gibbons & Gerrard, 1997; Huttenlocher & Higgins, 1971; Johnson & Knobloch-Westerwick, 2014;). To elucidate in the student transition scenario, a student may view photographs that depict his future housemates engaging in a range of social activities involving alcohol from which the student could form the impression that his future housemates are very sociable and enjoy drinking alcohol. If the student does not drink alcohol or does not tend to engage within social activities, then he may become concerned about his ability to successfully interact and cohabit with those new housemates particularly if he perceives being sociable or drinking alcohol as a norm within student culture.

Second, anxious individuals demonstrate hypervigilant attention to visual cues related to the focus of their anxiety (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg & Van Ijzendoorn, 2007; Berggren, Blonievsky & Derakshan, 2015; Bögels & Mansell, 2004; Fox, 2004; Yiend, 2010). For example, individuals with social anxiety tend to be hypervigilant toward social cues. Individuals with a phobia about spiders tend to attend more quickly and frequently to visual cues that resemble spiders. The same effect emerged amongst individuals experiencing transient worries about performance in the short-term rather than longer-term, more permanent anxiety experiences



associated with phobias and social anxiety (Oathes, Squillante, Ray & Nitschke, 2010; Williams, Mathews & Hirsch, 2014).

If extrapolating the hypervigilance research to students in the weeks prior to starting university, then it is possible to surmise that students focus their attention on identity cues related to the subject of their worries about university. For example, many students worry about the financial aspects of university including their ability to pay for books, study resources, food, laundry and social activities (Brooks, 2005; Paolini, Yanez & Kelly, 2006). A student who is already worried about being financially insecure at university may focus her attention on identity cues reflecting the financial circumstances of her housemates at university at the expense of other cues, resulting in the impressions dominated by other students' financial circumstances. In such a scenario, the students' worries are affecting the impressions that they form given that they are focusing their attention on identity cues pertinent to their existing worries at the expense of other identity cues. The proposal is not to suggest that other identity cues are ignored but instead that the identity cues related to worries may receive more significant attention and become more dominant than other cues when forming impressions.

Third, impression formation and identity construction are interlinked insofar that people share content on social network sites and elsewhere with an intention to influence others' impressions about themselves (Counts & Stecher, 2009; Davis, 2010; Goffman, 1959; Zhao, Grasmuck & Martin, 2007). If students experience worries which affect how they present themselves on a social network site, then their modified self-presentation could influence the impressions that their housemates and coursemates form about them. For

example, a student may be concerned about whether his new housemates and coursemates will perceive him negatively after first meeting on social network sites. The student may attempt to sanitise his profile page to remove content that others could view negatively, which in turn may influence the impressions that fellow housemates and coursemates form about him from his profile page (Raynes-Goldie, 2010). If a student removed significant numbers of angry status updates from his profile then his housemates may be unaware of those posts and therefore those posts would not influence his housemates' impressions of him.

Fourth and finally, students' worries about themselves or other people can also be conceptualised as impressions. A student may interact with her coursemates then become worried about her ability to succeed on the course because they seem more intelligent than her. Similarly, a student may be worried that she has nothing in common with her housemates after viewing photographs on their profile pages and seeing a range of unfamiliar social activities that they engaged within prior to starting university. The student's worries about her ability to succeed and having too few mutually-shared interests are impressions as they reflect judgements about herself and other people, respectively.

Relatively little is known about the types of impressions that students form about each other on social network sites in the weeks prior to starting university. To develop an understanding of the scenario, the study reported in this chapter posed the following research question:

- Research question 1: What types of impressions do first year undergraduates form about each other on social network sites in the weeks prior to starting university?

## **Method**

### *Design*

Seven focus groups discussed the impressions that incoming first year undergraduates formed about each other on social network sites in the weeks prior to arriving at university.

The focus group method was selected based on an expectation that the method would enable a more authentic representation of the students' impressions during data collection, analysis and dissemination compared to alternative methods including interviews and questionnaires. First, focus groups enable critical debate amongst participants which would have been difficult with alternative methods including interviews and questionnaires that do not encourage participant collaboration (Kidd & Parshall, 2000). It was expected that students' impressions would be more authentically represented through focus groups because the students themselves could identify the pertinent aspects through their disagreements and debates, rather than their impressions being identified on the students' behalf by the researcher. Unlike focus groups, critical debates in interviews were expected to be counterproductive given that the interviewees may have felt intimidated by direct confrontation with the researcher (Kidd & Parshall, 2000).

Second, focus groups also allow researchers to adopt a more passive role during the focus groups by minimising verbal interaction within the focus group, compared to interviews and questionnaires that require researcher intervention (Mann, 2010). By having the researcher intervene less, it was anticipated that focus groups would empower the students to manage much of the discussion

themselves, raising the aspects of their impressions that they consider to be significant rather than which the researcher raised (Macnaghten & Myers, 2004).

Finally, the focus group method was selected to allow students to prompt each other about common encounters. Such prompts were considered particularly important in the current study given that students would be discussing encounters and impressions several months after the event. Consequently, there was a risk that the discussions in the focus groups would be at the mercy of memory. Participants tend to more actively engage with research topics in focus groups than interview and online questionnaire (Bristol & Fern, 1996) therefore the prompts were considered a useful addition for those students who might struggle to recall their experiences otherwise.

### *Participants*

Forty-two first year undergraduate students (24 male, 18 female) took part in one of seven focus groups. Each focus group contained five to seven housemates living together in university accommodation. The mean age at the time of the focus group was 18.95 years ( $SD=0.58$ ), ranging from 18 to 21 years. The mean age when starting university was 18.26 years ( $SD=0.50$ ). Both ages represent the common enrolment age of undergraduate students at university (Higher Education Statistics Agency, 2015). Students originated from the UK ( $n=36$ ), Europe (2), Chile (1) India (1), Kenya (1), and Zambia (1). Five focus groups were mixed whereas two groups were single sex (one male-only group, one female-only group).

The subjects studied by students in the focus groups broadly matched the intake at the target university (UniStats, 2015). Students studied Engineering

( $n=12$ ), Social sciences (9), Life sciences (9), Languages (4), Physical sciences (4), Management (2), Computer science (1) and Mathematics (1). No interviewees had previously attended university.

Fewer students used Twitter ( $n=14$ ) and MySpace (2) compared to Facebook which all but a single student used. The spread of social network sites was similar to previous studies (Ji, Hwangbo, Yi, Rau, Fang & Ling, 2010; Kim, Sohn & Choi, 2011; Lenhart, Purcell, Smith & Zickhur, 2010).

### *Sampling procedure*

Groups of housemates were recruited through invitations placed on an internal university homepage regularly visited by students, and through invitations sent via e-mail to all first-year undergraduates living in university accommodation. The approach was chosen for efficiency because electronic communication was the primary form of communication with students at the university outside of formal teaching. Alternative options, including face-to-face invitations or posters, were considered less efficient given the diverse range of temporal and geographical patterns for student groups moving around the university.

A financial incentive of £10 was offered to all housemates that completed a focus group. The financial incentives were used to encourage participation from students who might otherwise be discouraged from attending after reading the topic of the focus group. The researcher was concerned about a failure to recruit students who were infrequent users of social network sites, who had negative university experiences, or who had weak or negative relationships with their housemates. Incentives can encourage a greater response rate and attendance by disinterested groups such as those that the researcher in this study

identified as being at risk of not taking part (Bloor, Frankland, Thomas & Robson, 2002). The financial incentive was also used to encourage a broader demographic profile of participants (DiSogra, Callegaro & Hendarwan, 2009; Parker & Tritter, 2006).

A £10 financial incentive was considered small enough within a student budget to not excessively bias the recruitment towards students with limited financial means. The financial incentives were not anticipated to excessively impact the focus group discussion because individual differences have greater influence on performance in research studies than small financial incentives (Rydval & Ortmann 2004).

Interested housemates responded to invitations by nominating a single member of their group to act as an intermediary when contacting the researcher. Intermediaries were sent an explanation of the study to discuss with their housemates, collated a list of questions from the group to ask the researcher about the study, and organised a mutually convenient time to attend a focus group. The researcher hoped that communicating through an already very well-known, respected intermediary would encourage the housemates to perceive him as more legitimate and trustworthy which would ultimately improve their willingness to take part in the study (Seidman, 2006; Sixsmith, Boneham & Goldring, 2003).

#### *Composition of focus groups*

The study recruited whole and existing social units for the focus groups, namely housemates that had lived together for several months, rather than bringing together individuals who had not previously met. Recruiting an existing social

unit was selected because focus groups consisting of individuals who already have social relationships are more likely to attend and complete those focus groups (Bloor, Frankland, Thomas & Robson, 2002) and critical discussions are facilitated when participants feel comfortable with one another (Kitzinger, 1995; Macnaghten & Myers 2004). Given the housemates would likely feel more comfortable with each other, the expectation was that students would feel more confident to disagree with each other and offer counter perspectives rather than agreeing with the status quo (Bloor, Frankland, Thomas & Robson, 2002; Kitzinger, 1995; Macnaghten & Myers 2004). The critical debate and disagreement was sought to provide a more rigorous student-led dissection of their impressions during the focus group discussing which in turn would translate into more rigorous, authentic dissection of those impressions during analysis (Myers & Macnaghten, 1999).

Housemates were recruited over coursemates due to pragmatic reasons. Unlike university accommodation that ranged from six to fifteen housemates living together, most courses at the university had over one hundred students enrolled (UniStats, 2015). Selecting a representative sample of students from the same course would have been difficult to manage particularly given a wide variety of subject disciplines represented throughout the university. In choosing housemates, the whole social unit could be involved in the focus group.

The impact of choosing housemates over coursemates was considered negligible because housemates were enrolled courses at the university. Consequently, housemates would be able to discuss their impressions of coursemates if relevant. A wide range of courses were likely to be represented, because the university placed students in accommodation amongst others from a

diverse range of courses rather than only with people from the same course (E. Hooper, personal communication, 6<sup>th</sup> September 2012).

Five focus groups were mixed whereas two groups were single sex (one male-only group, one female-only group). The different compositions were chosen to encourage a more diverse range of perspectives to emerge during the focus discussions. Gender composition influences the types of discussion within a focus group and therefore the themes that emerge during analysis (Hoffmann & Maier, 1961; Stewart & Shamdasani & Rook, 2007). Men tend to discuss personal topics and themselves more whereas women tend to be less dominant in mixed-sex rather than single-sex focus groups (Aries, 1976). Additionally, people make judgements of attractiveness and attraction on social network sites (Greitemeyer & Kunz, 2013; Seidman & Miller, 2013; Wang, Moon, Kwon, Evans & Stefanone, 2010). Single sex focus groups were considered important should some students be unwilling to discuss attractiveness and attraction with members of the opposite sex.

The researcher ran more mixed sex ( $n=5$ ) than single sex focus groups (2) to more closely approximate the groups that students interacted with in the weeks prior to starting university. Most university accommodation and university courses in the United Kingdom are mixed-sex including at the university involved (UCAS, 2015). Most interactions of social network sites were expected to be amongst groups containing both men and women.

In terms of inclusion criterion, a requirement was made insofar that the majority of a focus group should have used Facebook to find others at their university in the weeks prior to arrival at university. The requirement was imposed so that the students had experiences on a single social network site that



could form the basis of common discussion during the focus group. The inclusion criterion was considered appropriate because Facebook was the most heavily used social network site amongst students at the time of the study (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015; OfCom, 2014).

The requirement for using Facebook was imposed on the majority rather than the entirety of housemates attending the focus group. The choice to impose the requirement on the majority avoided excluding individual students or cultures that did not use Facebook but instead used alternative social network sites, including Chinese or Japanese students (e.g. Kim, Sohn & Choi, 2011; Saw, Abbott, Donaghey & McDonald, 2013; Wikle & Comer, 2012). By encouraging housemates who had not used any social network sites to find others at their university in the weeks prior to arrival at university, a more diverse set of perspectives and experiences to be debated was sought.

#### *Size of focus groups*

Focus groups consisted of five to eight housemates, matching the number of people sharing accommodation at the sample university (UniStats, 2015). The size of focus groups matched the most efficient focus group size identified by many researchers (e.g. Bloor, Frankland, Thomas & Robson, 2002; Wilkinson, 1998).

Focus groups with fewer than five people were avoided to ensure an adequate diversity of impressions formed on social network sites. Larger focus groups were avoided to reduce the likelihood of overlapping speech, multiple concurrent conversation, and insufficient time for housemates to explicate their impressions and viewpoints (Morgan, 1995). To avoid excluding larger

accommodation groups, one kitchen group of thirteen housemates was split into two smaller focus groups.

### **Procedure**

Focus groups were held in a university classroom around all sides of a square table. A square seating design allowed all students to see each other with the aim of facilitating discussion and reducing the potential for domination by a single student (Hares & Bales, 1963; Krueger, 1994; Stewart, Shamdasani & Rook, 2007).

Upon arrival, the interviewer explained the nature of the focus group to the housemates and requested they sign consent forms (Appendix A). The interviewer highlighted that discussion should be approached with respect and that consensus was not the goal of the research project.

The focus group was organised using a semi-structured interview schedule, chosen over a strictly structured interview schedule. By using a semi-structured schedule, the interviewer could amend the structure of the discussion to more closely represent the housemates' experiences of impression formation rather than represent the interviewer's preconceptions of those experiences, whilst at the same time allowing the interviewer to move the discussion back to the research questions should the students' discussion have drifted either in scope or relevance (Powell & Single, 1996). Changes could include asking follow-up questions for clarification, or omitting questions to allow further time for student-led discussion to take place.

The interview schedule centralised the discussion on specific examples of encounters on social network sites and specific examples of impressions during

the weeks prior to starting university. An open-ended prompt encouraged the housemates to identify those examples for discussion:

- Tell me about what you found out about each other on Facebook, in the weeks prior to arriving at university.

The initial prompt was written using broad, general language to avoid constraining focus group discussion to specific types of impression defined by the interviewer, instead allowing the students to choose their own impressions to discuss (Krueger, 1998; Morgan, 1997). The remaining questions in the interview schedule were also written using general language but following up on each example that students raised, as recommended by Morgan, Fellows and Guevara (2002). For each example that a housemate identified in response to the initial prompt, the interviewer asked the follow-up questions:

- What did you get from this?
- What did you think about each other?
- What was most useful or important?
- What was least important?
- Were there any hindrances?
- What would you have changed about the experience? Is there anything you didn't find out that that you wish you had found out?

Those follow-up questions were designed to draw out more specific details of an impression and to encourage housemates to collectively and critically reflect upon those impressions.

By organising the focus groups around students' examples, the focus groups were designed to allow multiple housemates to offer supplementary or conflicting accounts of their impressions from the same (or similar) encounters on social network sites. The supplementary, conflicting accounts were intended to draw out distinctions pertinent to impression formation in the applied scenario under consideration (Madriz, 2000). To access a more diverse range of perspectives, housemates were occasionally encouraged to compare their and others' impressions using supplementary questions:

- What do the rest of you think? How do your experiences compare?
- Do any of you have any similar experiences?
- Do any of you have any different experiences?

After each example, the interviewer returned to the original prompt and the process would repeat with students then being asked follow-up and supplementary questions where appropriate.

The interviewer encouraged the groups were encouraged to self-manage their discussion (Macnaghten & Myers, 2004). Supplementary questions were only used during the early stages of the focus group to develop a norm of debate amongst the students. As the focus group progressed, the supplementary questions were rapidly used less regularly. The intention was to avoid the interviewer encouraging students to fabricate similarities and differences for the

sake of debate, or excessively directing discussion towards topics less relevant to the housemates (Kitzinger, 1994)

One risk of allowing semi-structured interview schedules is that the discussion can drift too far from the research questions and topic being considered (Macnaghten & Myers, 2004). Consequently, and in line with the recommendation of Murphy, Cockburn and Murphy (1992), the interviewer allowed brief and off-topic discussion to emerge but actively prompted a return to the research topics when the discussion no longer appeared relevant and lasted longer than one minute. Allowing apparently off-topic discussion to emerge briefly was designed to ascertain whether the discussion was off-topic or vaguely relevant to the research questions and likely to yield a novel insight into impression formation.

When the interviewer identified a single housemate or subsets of housemates dominating discussion, the interviewer directed the supplementary questions at others in the group to invite other less dominant housemates to contribute, as recommended by Barbour (2008) and Kitzinger (1994).

Nearing the end of the interview, the interviewer asked the following question to encourage contributions and experiences from any housemates that used other social network sites apart from Facebook:

- Did anybody use other social network sites apart from Facebook? If so, tell me about tell me about how you found out about each other on these social network sites in the week prior to arriving at university?

The question was considered important given cultural variations the specific social network sites that are used (Kim, Sohn & Choi, 2011; Saw, Abbott, Donaghey & McDonald, 2013; Wikle & Comer, 2013).

Discussions in each focus group lasted 60 to 90 minutes after which housemates completed demographic questionnaires before debriefing and signposting to appropriate support services. The interviewer's decision to finish each focus group was based on an apparent saturation of topics discussed within the focus group (Onwuegbuzie, Dickinson, Leech & Zoran, 2009), an assessment of group fatigue (Millward, 2012), or the end of the allotted 90 minutes.

Data saturation was also an important criterion for whether more focus groups were recruited. Recruitment was halted after seven focus groups because the sixth and seventh focus groups did not appear to be meaningfully add new themes and subthemes (Guest, Bunce & Johnson, 2006; Morse, 1995).

Care was taken whilst recording focus groups to minimise audibility issues that affect the quality of transcription. As recommended by Kidd and Parshall (2000), focus groups were recorded using two digital recording devices placed centrally on opposite sides of the table. In conjunction with a table plan identifying which students were seated where, the audible differences in the recordings between the two devices were designed to help the interviewer resolve ambiguity when identifying speakers.

### *Data analysis*

Focus groups were transcribed verbatim using a denaturalised transcript style, focusing only on the words and excluding intonation apart from where this was judged to alter the meaning of the phrase (Cameron 2001; Fairclough, 1992).

Deeper transcription style was redundant to the level of detail required for the subsequent thematic analysis.

Transcripts were anonymised to protect the identity of the students participating and other individuals or entities discussed (Jenks, 2011). Names and nicknames were replaced with pseudonyms which consistently referred to a specific individual throughout a transcript (Saunders, Kitzinger & Kitzinger, 2015). Pseudonyms reflected only the gender of the original person who spoke or was described.

The names of specific locations (i.e. names of accommodation blocks; room numbers; home town), social groups (i.e. the names of sports clubs or courses) and other personal details (e.g. physical attributes; race; religion) were replaced with suitable alternatives reflecting the nature of the entity discussed (Grinyer, 2002). For example, the name of a physical sciences course was replaced by the name of another physical sciences course.

Details were not replaced if they did not offer uniquely identifying information. For example, most undergraduate students are aged 18 or 19 years of age (UCAS, 2015). Any references that students made to those ages were not replaced. Older ages (e.g. 65 years) were more unique therefore were replaced with other ages reflecting that the people being described were older than many of their peers but which did not match the given age.

Thematic analysis was considered the most appropriate method of textual analysis to identify the types of impressions that undergraduates form about each other on social network sites in the weeks prior to starting university. Thematic analysis involves the researcher defining a list of the codes and themes that appropriately summarise data (Braun & Clarke, 2006; Braun, Clarke & Terry,

2014). In this study, the list of codes and themes summarised the types of impressions that students formed on social network sites in the weeks prior to starting university.

Discourse analysis (Potter & Wetherell, 1987) and interpretive phenomenological analysis (Smith, 1996) were rejected as inappropriate because the research question was interested in describing students' impressions. Deeply delving into how students used language to describe those impressions would provide little benefit in answering that question. Classical grounded theory (Glaser & Strauss, 196; Strauss & Corbin, 1997) was considered inappropriate because the analytical technique places an unrealistic demand on the researcher to ignore all personal preconceptions and understanding of the research literature that might have any bearing on the research topic (Bruce, 2007; Dunne, 2011; Thornberg, 2012). The demands were considered unrealistic given that the researcher conducted a research proposal and literature review prior to beginning the study which could not be forgotten (Bruce, 2007; Clarke, 2005; McCallin, 2006) and the demands would likely reduce the overall quality of analysis given that the researchers' theoretical insights would not be drawn upon when attempting to understanding discussions (Lempert, 2007).

A primarily inductive approach to thematic analysis was adopted in preference to a primarily deductive approach. An inductive approach mostly derives the themes from the focus group discussion (Braun, Clarke & Terry, 2014; Hayes, 2000; Rice & Ezzy, 1999). Comparatively, a deductive approach to thematic analysis predefines themes prior to examining focus group transcripts (Boyatzis, 1998; Crabtree & Miller, 1999; Patton, 1990). An inductive approach was appropriate to the exploratory nature of the study, and centralised students'



impressions in the analysis rather than the researcher's preconceptions of those impressions. A deductive approach would centralise analysis around the researcher's preconceptions and risk ignoring impressions that fail to fit into a predefined list of themes (Rice & Ezzy, 1999).

In line with inductive thematic analysis, the researcher scoured each focus group transcript and identified each impression that students espoused about another social entity regardless of whether that entity was an individual or a group of people. The definition of impression was any opinion or judgement about another social entity, in line with the definition outlined by Hamilton and Sherman (1996). Compared to more specific definitions that focus on a specific type of entity (e.g. an individual; Fiske, Lin & Neuberg, 1999) or specific aspect of that entity (e.g. personality; Asch, 1946), the Hamilton and Sherman definition was selected for being relatively broad but still referring to human social targets. By choosing a broad definition of impressions, the researcher hoped to empower students insofar that the types of impressions that would be included in the analysis were not as predefined to a specific social target compared to if the researcher had selected a narrower definition of an impression.

After identification, each impression was assigned a descriptive code that summarised a meaningful aspect of that impression. An exhaustive coding approach was adopted insofar that impressions could be assigned multiple codes (Bryman, 2001; Fade & Swift, 2011).

It was acknowledged that the researcher's understanding of students' impressions would develop during the process of scouring and familiarising himself with transcripts (Green, Willis, Hughes, Small, Welch, Gibbs & Daly, 2007; Neuman, 2006). As recommended by multiple researchers, the researcher

repeated the process of coding to identify whether there were any descriptive codes missed during the first coding attempt that could be applied to the students' impressions (Bogdan & Biklen, 1982; Saldaña, 2013).

After coding each impression, the researcher listed the codes alongside their quotes and began grouping codes into consistent patterns of meaning which are hereafter referred to as themes (Ryan & Bernard, 2003). Codes were initially grouped into a theme if the codes were conceptually similar or synonymous including when detailing a similar social target of an impression, opinion or inference, or evaluative comment (Bogdan & Taylor, 1975; Guba, 1978; Lincoln & Guba, 1985). The grouping of codes into themes was a multidimensional process with some codes grouped into multiple themes concurrently (Bryman, 2001). Each theme labelled to meaningfully describe the codes contained within that theme, were assigned a more in-depth definition for that theme, and were assigned boundary conditions to help the researcher to identify if a code was an example of the theme (Boyatzis, 1998).

Themes were defined iteratively, with their scope broadening as codes were added (Abbott, 2004). When the scope of themes became too broad, they were split into multiple themes that more appropriately accounted for the contained codes (Saldaña, 2013). Labels and definitions for each theme were adjusted accordingly.

After themes were assigned to each code, the researcher viewed a list of all the codes and the themes to which they had been aligned. The researcher could realign codes which no longer fit the theme, split themes, and combine themes where necessary (Braun & Clarke, 2013).

Where possible, the researcher developed a hierarchy of themes insofar that themes were grouped into a supertheme if there was sufficient overlap in meaning between those themes. Antonymous themes were also grouped together into a supertheme if the themes were meaningfully related to each other. For example, some impressions focused on alleviating worries whereas others focused on promoting worries. Although the themes were antonymous, both dealt with worries therefore were grouped together into the same supertheme.

A purely inductive approach to the thematic analysis would be impossible to achieve because researchers cannot remove themselves from existing knowledge about the field. Instead, the researcher acknowledged that whilst knowledge of existing theory can constrain analysis (Charmaz, 1990) the same knowledge could also be useful to drawing out distinctions that might otherwise be missed (Ryan & Bernard, 2003). Consequently, the researcher made notes when impressions related to theory in some manner including whether the impression was consistent or inconsistent with the research literature.

Throughout, the sole individual researcher was responsible for the interviewing, transcription and thematic coding. The primary benefit of using the same researcher throughout those three processes is that the researcher becomes engrossed and can more intuitively understand the meaning expressed by students in the focus groups (Kidd & Parshall, 2000).

To validate the researcher's analysis, three expert researchers and three students involved in the focus groups were sent a draft copy of the thematic analysis as recommended by several researchers (Barbour, 2001; Denzin, 1970; Guba & Lincoln, 1981; Lincoln & Guba, 1985; Mays & Pope, 2000; Patton, 1990). The draft analysis included the titles of the themes, quotes exemplifying

those themes and the descriptive narrative surrounding those themes for their discussion and comments. Two expert researchers were provided with a selection of anonymised transcripts indicating the quotes aligned to specific themes and subthemes.

Recipients were asked if they agreed with the titles of the themes and subthemes, whether they felt that the themes and subthemes were a misrepresentation of the known research literature (for experts) or the discussions in the focus groups (for the student participants), and whether they felt that any recombination of themes was appropriate. If the experts or students disagreed with any aspect of the analysis then they were asked to provide a brief explanation outlining their concerns. The feedback from expert researchers and participants was collected through informal face-to-face or email discussion.

The expert researchers consisted of three academics identified from within the local academic community, were known to the researcher, and had at least Masters-level expertise in the field of identity construction and impression formation in online environments including social network sites. Each researcher had published research in peer-reviewed academic journals, and was trained in the fields of psychology, sociology or management studies.

When disagreements emerged, the researcher discussed the themes and subthemes of note with the person highlighting the issue. It was acknowledged that themes identified by the researcher could be inconsistent with the views of the students or expert researchers. Such inconsistency should be expected to improve understanding rather than align to existing beliefs held by researchers in the field or due to a lack of personal awareness on the part of participants.

(Morse, Barrett, Mayan, Olson & Spiers, 2008). Attempts were made to resolve differences, where possible.

It may have been preferable to have had expert researchers and participants independently and inductively code the themes then have compared the themes in a group discussion. Given that the thematic analysis was part of an academic thesis and rules dictated that analysis be completed by the researcher himself, however, the more informal discussion with expert researchers and participants was adopted.

## **Results**

Thematic analysis divided impressions into three broad superthemes: the strategy used to get to know others on social network sites, the social target of an impression, and the types of impression formed about those targets. Each supertheme is described herein using verbatim, anonymised examples of themes and subthemes:

### *Types of strategies used to get to know others on social network sites*

Students formed impressions about both groups and individuals from passive and interactive strategies on social network sites.

#### Passive strategy on social network sites

Many students formed impressions about each other from encounters that could be grouped and described as a passive strategy. A passive strategy refers to encounters that involve no direct two-way interaction between two people

getting to know each other. The most common encounter on social network sites, which also appeared to excite students the most, was viewing photographs:

SIMON: You can stalk through all their picture!

LAURA: I looked at all their photos!

Students suggested that photographs were useful for forming impressions by giving behavioural clues about their future housemates and coursemates in the context of their existing social relationships:

RACHEL: You just look at them! Everything you can hunt down about them! Photos of their school, their friends, their hobbies. Everything.

LAURA: He was such a lad. He was in all these photos on holiday with all his mates in the sun and they were all posing. They all looked like such lads.

Although viewing photographs was the most common encounter on social network sites, students also reported forming impressions from other forms of encounter aligned to a passive strategy:

RACHEL: You just look at them! Everything you can hunt down about them! Photos of their school, their friends, their hobbies. Everything!

RICHARD: It came up that we both liked waterpolo and I was like oh she's nice we're going to get on! Because it isn't something that everybody does.

The examples highlight that biographical information available on a person's social network site profile page can be used to form impressions about them. The second quote hints that this biographical information may be more important when the information is particularly pertinent to the person forming the impression such as being the evidence of a shared interest.

Some students also reported 'lurking' in communal group areas for new housemates and coursemates:

ANTHEA: I just watched everybody chatting and getting to know each other. I didn't want to say anything. Sorry guys!

The example highlights that some students using social network sites benefited from the encounters aligned to a passive strategy because they did not have to actively participate in an interaction.

#### Interactive strategies on social network sites

Students also formed impressions about their housemates and course from direct interaction with each other. The direct interaction mostly centralised on interaction between housemates and coursemates on group pages:

HAYLEY: We were all chatting on the course page.

RICHARD: I'd go on and I'd have about 50 updates from the group page.

Laura commented on this post, Richard replied to this post. It was ridiculous. And I'd have to go through and comment back to them.

JENNY: The second years were the ones who set up the page. We've got our own now. But we all asked questions and people responded and said oooh I'm so excited, smiley face and l o l.

Group pages are dedicated webpages on social network sites such as Facebook whereby users can read about, discuss and post content related a common interest, population, event, activity or location (Abramson, Keefe & Chou, 2015; Alemán & Wartman, 2008; Park, Kee & Valenzuela, 2009). In the weeks prior to starting university, Facebook group pages were created for students starting the same course, living in the same accommodation complex, or were interested in joining a particular sports club. Example, fictional names for such narrow groups would include "Hylde Block Accommodation 2010!!!" or "Psychology freshers @ University of Torbay 2011 ☺". Group pages were also created for a much broader population including all students starting at a specific university within the same academic year.

Groups are often set up by an individual or organisation with an interest in bringing people together. At the university of interest, many groups were set up by more senior students who had been given specific responsibility for facilitating student adjustment within an accommodation block or course during the first few weeks of university (Alemán & Wartman, 2008).



Incoming students find the group pages by following hyperlinks provided to them by their university through a welcome email or webpage, by another student that they have met in other university groups on a social network sites, or after searching for the group of interest by some relevant keyword. For example, a search for “Hylde Block” might return a list of Facebook groups including a group for Hylde Block Freshers!!! – 2012 entry”).

Within the groups there was a high degree of interaction between the housemates or coursemates, including asking questions, exclaiming excitement about university, or as in the following example discussed plans for arrival at university:

SIMON: oh yeah we were saying that we were to do beer pong. And Sarah was nice and said that the she was going to bake for us. We’re such a good house.

Although some students posted photographs and written messages that were directly related to the topic of the group (e.g. questions about accommodation), the groups were also used to interact with their peers about wider range of topics (e.g. discussing sporting interests whilst in a group dedicated to coursemates or housemates; commenting on attendance at music festivals or recent television shows that were popular during the summer period). In addition, members of groups members can usually able to view all the other members of the groups by name and click those names to view their public profile pages or initiate friendship connections with them. Some students reported established friendship

connections with each other on Facebook after clicking through to each other's profiles in the groups dedicated for their accommodation or course of study.:

HAYLEY: I saw you and, boom, I just added you all

Friending often enabled a less common method of direct interaction between students involved the instant and private messaging features available on social network sites:

SIMON: She popped up as a new friend and we just started messaging each other.

Private messaging was potentially less common given that many housemates perceived the messaging to be abnormal and strange due to a potential lack of conversation topics:

SARAH: Yeah, it's weird. What did you guys have to talk about? And you got her number too! It's just weird!

RICHARD: You guys couldn't have had anything to say to each other!

### *Social target of impressions*

Impressions were formed about a range of social targets although mainly divided into two dimensions: impressions about an individual or a group, and impressions about coursemates and housemates.

### Impressions about a specific individual

Many students formed impressions about a specific individual such as a specific housemate or coursemate:

CLAIRE: He [a specific coursemate] freaked us all out a bit. Because he was saying oh I'm from Kenya I'm bringing this to uni, I'm bringing this to uni. And I was sat on my computer thinking oh my God and I'm living with someone really scary.

RACHAEL: No. It was really posey. I was like. Erm first impressions going out a lot and really posey. I was like I look forward to meeting

CLAIRE: And [she typed] "hun" a lot. "Hey" yeah. "Hey hun! Sort of people. I was like please don't be like that [type of person]

### Impressions about a group of people

Impressions were not restricted to being about a specific individual. Students also formed impressions about a group of people. As with impressions about a specific individual, impressions about groups of people involved two main groups which were the students' coursemates and housemates:

CLAIRE: It was nice just have spoken to them even just on [Facebook] chat. They [the coursemates] seemed just nice and friendly and lovely.

SIMON: My course just looked horrifically geeky.

SIMON: They [coursemates] all looked really clever. I remember thinking that I was no way going to be able to compete with these guys.

ANTHEA: It was nice to know the type of people that you would be living with.

Impressions about groups of people were pervasive throughout the focus groups. There are more examples of impression about groups in the later discussion on the types of impressions that students form about each other.

#### Lack of focus on other relationships

Impressions rarely focused on any other relationship than housemates or coursemates, irrespective of whether the impression concerned a specific individual or a group of people. There were some mentions of impressions about sportsmates but these impressions were rare, potentially due to applications and trials for sports teams taking place after the students had arrived at university rather than prior to starting university.

#### *Types of impression*

The thematic analysis identified three broad types of impression that incoming undergraduate students formed about each other after encounters on social network sites in the weeks prior to starting university. Housemates tended to

form impressions that involved a comparison to themselves, a pertinent worry and a degree of scepticism. For each type of impression, housemates did not just form impressions about specific individuals but also impressions about groups of people. The following descriptions outline each of these types of impression, in turn.

### Egocentric impressions

Many impressions formed by students were egocentric insofar that those impressions, despite being formed about an external social target including a housemate or coursemate, were related back to themselves.

Many students formed impressions about their housemates and their coursemates which also had some bearing on their impressions of their own academic ability. The following example highlights a student who judged her own academic ability based on her impression of a housemate's intelligence:

CLAIRE: He was just talking about all sorts of different things that I hadn't ever heard of. I mean, I have now, and it isn't even complicated. But back then, he seemed just so intelligent and I felt so thick.

In the example, the student formed an impression about her housemate after reading the varied topics that he had discussed with others on a Facebook group. Not only did the student form an impression that her housemate was intelligent, but she also egocentrically related that impression back to herself insofar that she formed the impression that her housemate was more intelligent than her. It was unsurprising that the student formed an impression about her own academic

intelligence because one of the most common worries that students experience in the weeks prior to starting university is that they will not be intelligent enough to succeed on their course (Brooks, 2005).

The previous example involved a student forming an impression about a specific individual which she then related back to herself. However, the same egocentric nature of impressions was evident for impressions about a group of people too. The following example illustrates another student who judged his own academic ability based on his impression of others. His impression was based on coursemates as a group of people rather than a specific coursemate:

SIMON: My course just looked horrifically geeky. I saw them and thought oh no how am I going to catch up? I am going to fail.

The two previous impressions involved students comparing housemates and coursemates to themselves.

In addition to forming egocentric impressions about their own abilities, students also formed another type of egocentric impression. Many students formed impressions about others' opinions of them, including their housemates and coursemates opinions. Some students formed the impression that their housemates would dislike them:

HARRIET: So there's a girl in room 22 who we thought was in our corridor so I remember looking at her on Facebook and thinking that she wouldn't like me. She looked a bit of a popular, like I mean she is popular, but she looked like a bit of er popular girl. I was like ohh.

In the example, the student formed an impression of her housemate after viewing her Facebook profile. The impression was egocentric insofar that the student did not solely focus on her housemate but the impression also extended to include herself. After viewing her new housemate's profile, the student formed an impression that her housemate fitted the social stereotype of a "popular" teenage girl and inferred that her housemate would dislike her based on the types of attitudes that she believed the stereotype usually holds. As with the impressions involving academic ability, it was unsurprising that many students formed egocentric impressions about being disliked (or liked) because such a concern is common amongst students in the weeks prior to starting university (Brooks, 2005).

In addition to stereotyping, the student in the preceding example formed an egocentric impression after viewing her housemate's Facebook profile (an encounter aligned to the passive strategy). However, other students formed similar egocentric impressions whilst attempting to engage in private messaging with their housemates (an encounter aligned to the interactive strategy):

CARL: Yeah I added her and I sent her a message. And she didn't because she was like on her phone she didn't get it. Because she only gets it when she goes online, and she didn't reply for like weeks. And I was like oh my God she hates me.

As with the previous examples in this theme, the student's impression was egocentric insofar that he did not solely focus on his housemate but the

impression also bore some relation to himself. The example highlights that egocentric impressions can be formed not just by passively viewing a Facebook profile, but also by silence or delay from the communication partner

### Impressions involving worries

Many students' impressions involved worries or concerns. Those impressions predominantly involved the types of worries that are pertinent to students in the weeks prior to starting university, namely academic or social worries about university.

#### *Impressions involving academic or social worries about university*

As previously discussed, many students formed impressions that bore some relation to their academic worries about university. For example, some students formed impressions that their coursemates and housemates were very intelligent:

CLAIRE: He was just talking about all sorts of different things that I hadn't ever heard of. I mean, I have now, and it isn't even complicated. But back then, he seemed just so intelligent and I felt so thick.

SIMON: My course just looked horrifically geeky... They [his coursemates] all looked really clever. I remember thinking that I was no way going to be able to compete with these guys.

The two examples highlight that academic worries permeated the impressions not just about a specific individual (the first example, involving an impression



about a specific housemate) but also about a group of people (the second example, involving an impression about coursemates as a broader group of people).

In addition to academic worries, many students formed impressions that bore some relation to their social worries about university. For example, some students formed impressions that their housemates were excessively sociable or would dislike them:

SALLY: I remember her telling me I can't wait to go to uni. But I was like she always seems to be going out. And I thought oh my God she's going to be mental.

DEBBIE: I saw her photo and she just looked like the type of girl who wouldn't like me.

The four previous examples involved students' negative impressions that bore some relation to their academic and social worries about university. Not all impressions were negative, however. Many students' impressions were positive yet were still related to their academic and social worries about university. As an example of academic worries, some students were comforted when forming positive impressions that their coursemates were as equally dumbfounded as themselves about their new course:

CAROL: It was just nice to know we were all in the same boat. Nobody had a clue.

Similar positive impressions were evident for worries about the social aspects of their future university experience. Specifically, some students formed positive impressions that their housemates seemed agreeable and friendly:

SALLY: Erm knowing like that other people have the same sort of concerns as you, and that I know I dunno I know it sounds a bit weird but you don't you kinda think that Bath's a pretty good university but you don't know if they're going to be like full of people who are like I dunno its like you stereotype. Is it going to be full of geeks? Is it going to be full of sense of humours? People who are going to be scary and not understand me at all. But it was kinda me just seeing that people seemed to have nice personalities and stuff.

Notably, all positive impressions involving worries were formed about a group of people such as the students' housemates or coursemates as a group. Comparatively, there were no instances where students formed positive impressions about a specific individual where that impression also bore some relation to a social or academic worry. The finding contrasts with students' negative impressions involving worries which were commonly formed about both a specific individual and a group of people.

#### 'Comforting' impressions

Some students discussed their impressions as being comforting because their impressions provided greater certainty about university.

LAURA: I was so scared but it was just nice to know something about this person or something about that person. It was like you could rely on it.

CAROL: It was just nice to know we were all in the same boat. Nobody had a clue.

SHAUN: Yes it was definitely good that we had Facebook. It definitely helped. We got to know things about each other and so it didn't feel so bad.

The students appeared to take comfort in their impressions providing a semblance of certainty amidst the wider ambiguity that was pervasive to their experience in the weeks prior to starting university.

### *Scepticism towards impressions*

Many students discussed their impressions with a degree of scepticism. Three subthemes were identified that suggested impressions formed on social network sites were incomplete, were inferior to face-to-face encounters, or were prone to self-enhancement.

#### Impressions are incomplete

Throughout each focus group, housemates portrayed impressions formed on social network sites as incomplete. The housemates used the incompleteness of impressions to justify their scepticism:

ELEANOR: There's only so much that Facebook can tell you about a person because I wouldn't have like completely or really have relied on that as a method of distinguishing this person and this person and so forth.

GEORGE: Like you can see where someone went and their friends and stuff but if you're living with them for the next year. It still doesn't, it still doesn't give you a complete picture of who they are. I don't know like I don't think Facebook can tell you everything, maybe it tells you too much. You can't just tell until you're just living there with them 24 7 every day.

Both examples suggest that housemates viewed their impressions that were formed on social network sites as incomplete and failing to provide a holistic view of a specific individual.

However, there was some disagreement and uncertainty amongst housemates about whether impressions formed on social network sites were incomplete. The uncertainty and conflict was highlighted in the previous quote where the housemate states of Facebook that "maybe it tells you too much". Other examples include:

RICHARD: You can find out almost anything from Facebook

The examples highlight that unlike their peers, some housemates considered encounters on social network sites to be useful for learning information about other people at their university. By comparing examples from both sides of the disagreement, a distinction emerged between the development of an understanding or “complete picture” of a specific person and the learning of information or “facts” about the same person. Housemates tended to suggest a difficulty in forming complete impressions of people on social network sites. In contrast, students reported easily learning about information and facts about people on social network sites. One potential synthesis of the distinction is that (at least perceptually) although facts and information about people are abundant on social network sites, those facts and information are difficult to bring together into a holistic and coherent impression.

#### Impressions are inferior

Housemates also portrayed impressions formed from on social network sites as inferior to impressions formed face-to-face. Examples included:

SIMON: They're [impressions] are just not that good unless you meet somebody.

JACK: You just can't real know somebody until you get them in a room and start living alongside them. You can never really know.

The inferiority of impressions formed on social network sites was not restricted to impressions about a specific individual but were also impressions about a group of people:

LAURA: Your flat family might seem nice but you just can't get to know them until you've met them. It just doesn't work.

Irrespective of the social target being a group or an individual, however, the previous examples suggest that the housemates shared an understanding that impressions formed solely from social network sites are inferior to impressions formed solely after meeting face-to-face.

#### Impressions are not trustworthy

Housemates also reported that their impressions formed on social network sites were not entirely trustworthy. For example:

SIMON: Like anybody can change their picture. They show their best side. So you just can't trust Facebook.

The example typifies that the housemates did not trust encounters on social network sites but believed that they were on their “best” or most socially desirable behaviour. In the above quote, the words “best side” exemplifies a key reason that students cited for lacking of trust in their own impressions. Students did not trust their impressions due to an awareness that identity cues on social network sites were susceptible to manipulation and self-presentational

enhancement. People could make themselves “look better” or more desirable. The ability to manipulate impressions appears to have meant that students lost trust in impressions formed on social network sites.

Beyond the general ability to manipulate identity cues in online environments, the specific nature of the university transition scenario explored in the focus groups could further explain why some impressions were not considered trustworthy. Students considered first impressions to be important therefore many described trying to ensure a positive, socially desirable first encounter whilst minimising negative, socially undesirable encounters:

MEGAN: I went through and hid a few things.

KAT: Oh God, me too.

INTERVIEWER: Yeah?

MEGAN: Yeah.

INTERVIEWER: What do you mean by that?

MEGAN: Well, you know, I went through and made sure there wasn't anything dodgy. I made sure I was looking okay, hid anything where I was swearing, untagged myself from terrible photos.

KAT: Not all of them

MEGAN: Bitch. [laughter]. Not all of them I know. I made sure that there was nothing terrible left up there though. I just didn't want everybody thinking I'm a psycho and like who is this girl?

The students' attempt to minimise negative, undesirable encounters was demonstrated in the above quotes with many students admitting to altering their

Facebook profile beforehand to remove content that might be undesirable and perceived negatively by others. Similarly, many students also reported being on their “best behaviour” or actively avoiding behaviour or conversation topics that others may consider odd, outlandish, awkward, undesirable or negative. It is entirely feasible that a lack of trust in impressions on social network sites may emerge from students applying an understanding of their own usage of social network sites to the impressions that they form about others. The above quotes highlight that impression formation may not only be affected by the extent that people view identity cues as being easily manipulated but also the extent that people view identity cues as *likely* or *expected* to have been manipulated given an understanding of their own behavioural norms and the social scenario in which those cues were constructed.

*Feedback from expert researcher and student participants*

To validate the researchers’ analysis, a draft copy of the Results section from this chapter was sent to expert researchers and students who participated in the focus group for their awareness and comments.

When feedback was returned, the ‘egocentric impressions’ theme received criticism due to the original label being ‘narcissistic impressions’, then ‘self-centred impressions’, and then ‘egotistical impressions’. Students and researchers indicated that the rejected labels were negatively connoted and falsely suggested that the impressions were intentionally self-focused rather than the result of a possibly unconscious social comparison process. The theme was relabelled as ‘egocentric impressions’ to reduce the negative connotations and



avoid any implication that the impressions were the result of a manipulative, strategic behaviour associated with the narcissism personality trait.

Issues emerged concerning the quotes used to support the themes. An expert researcher reported misunderstanding the difference between impressions about a group and impressions about an individual from the quotes therefore replacement quotes were chosen to elucidate the distinction more effectively, accompanied by an expanded discussion of those quotes. A distinction was also originally made between broad groups (e.g. the general type of people at university) and specific groups (e.g. coursemate) but the expert researchers described that there were no apparent differences in how students discussed those impressions therefore the distinction was not considered pertinent to divide into separate subthemes.

Feedback from one expert researcher who read the transcripts also suggested the addition of a theme referring to impressions reflecting power dynamics. The suggestion was not implemented, however, given that the transcripts rarely mentioned power differentials other than some participants describing worry that their housemates and coursemates were superior to them in terms of popularity, outgoingness or intelligence. The comparisons to other participants were covered by the themes involving egocentric impressions and worries, respectively, therefore the addition of a power differential theme was redundant.

Expert researchers and participants proposed the addition of a theme that recognised the perceived trustworthiness of students' impressions improving after arriving at university and meeting face-to-face. The addition of the 'improvement after meeting' theme was rejected because the theme would have

overlapped heavily with the theme describing how students were sceptical of their own impressions prior to starting university. The scepticism theme focused on how students were sceptical of their impressions prior to starting university whereas the ‘improvement after meeting’ theme would only have served to have highlighted how that scepticism was justified when students’ impressions changed after living and studying together. The benefit of including the ‘improvement after meeting’ theory was also considered negligible to answering the research question which focused only on students’ impression prior to starting university rather than after arriving at university.

Overall, the feedback from the expert researchers and students indicated only minor changes to the labelling, evidencing and conceptualisation of the themes that were used to describe the type of impressions that students formed about each other from encounter on social network sites during the weeks prior to starting university.

## **Discussion**

In this chapter, a study was reported whereby focus groups explored the impressions that students form about each other on social network sites in an applied setting, specifically incoming undergraduate students getting to know each other in the weeks prior to starting university. Analysis of the focus group discussions identified that students tend to form impressions from encounters that would be aligned to a passive strategy, such as viewing photographs, and those aligned to an interactive strategy such as direct conversation in communal group areas (e.g. a Facebook group). Three types of impression about individuals and groups of people were prominent. The students tended to form impressions

that were approached with a degree of scepticism, egocentric impressions that were related back to themselves, and impressions that were related to their worries in some manner.

*Impressions formed about groups of people*

One theme stood permeated throughout all other themes on impressions insofar that students formed impressions about *groups of people* on social network sites. Students formed impressions about their future housemates as a collective unit and about their new coursemates as a collective unit. The literature review in Chapter 2 identified little existing research linking passive and interactive strategies with impressions about a *group of people*, but instead there was a wide range of research on impression formation about a *specific individual* (e.g. Antheunis, Valkenburg & Peter, 2010; Antheunis & Shouten, 2011; Carr, Vitak & McLaughlin, 2013; Hall, Pennington & Leuders, 2014; Utz, 2010; Walther, Van Der Heide, Kim & Westerman & Tong, 2008; Walther, Van Der Heide, Hamel & Shulman, 2009; Wilson, Gosling & Graham, 2012).

The limited research involving social network sites and impression formation about a group of people was surprising given the range of research which has highlighted that group identification and association are an essential part of identity construction on social network sites (e.g. Ellison, Steinfield & Lampe, 2007; Manago, Graham, Greenfield, Salimkham, 2008; Zhao, Grasmuck & Martin, 2008). Similarly, researchers have previously discussed how people construct their collective identities on social network sites through photograph tagging, comments and ‘in jokes’ (Barker, 2009; Mallan & Giardina, 2009; Mendelson & Papacharissi, 2010).

The study reported in this chapter was not designed to explore impressions about a group of people in depth. Consequently, the study is unable to offer any detailed conclusions on such impressions and the processes underlying their formation. Future research should compare how impression formation about a group of people compares to about a specific individual based on encounters on social network sites.

When forming impressions about others, students appeared to draw from stereotypes about groups or categories of people. Stereotypes are broad generalisations about a type of person or social category, often detailing assumptions about the behaviour, motivations, personality and general demeanour of the people within that social category (Hilton & Von Hippel, 1996; Lakoff, 1987; Stangor & Schaller, 1996). Stereotypes tend to develop from a person's previous experience with individuals who are the subject of the stereotype or are transmitted through interaction with others who already hold a stereotype (Mackie, Hamilton, Susskind & Rossell, 1996; Wigboldus, Semin & Spears, 2000).

Stereotypes can be drawn upon when forming impressions insofar that the broad generalisations about a social category are applied to an individual about whom the impression is being formed and whom is considered part of the stereotyped social category in some capacity (Brewer, 1988; Fiske & Neuberg, 1990; Jacobson, 1999; Kunda & Spencer, 2003; Kunda & Thagard, 1996). For example, students may view a coursemate in photographs regularly attending parties and associate that coursemate with a party-goer stereotype. The students' party-goer stereotype may include attributes of party-goer being loud in social interactions, drinking alcohol to excess, subsequently making undesirable

decisions, and focusing less on academic pursuits in favour of social engagements (Vander Ven, 2011). By associating their coursemates with the stereotype of a party-goer, the students generalise their impressions of their coursemates to also include those attributes irrespective of whether there are clear identity cues in the profile page that evidence those attributes.

Forming impressions using stereotypes can be much less cognitively demanding than forming detailed, individualised impressions that are tailored about a social target such as an individual (Brewer, 1988; Macrae, Milne, & Bodenhausen, 1994; Neuberg & Fiske, 1987). When forming individualised impressions, significant cognitive effort is expended attending to, processing and reconciling the inconsistencies and nuances in identity cues about the social target (Fiske, Lin & Neuberg, 1999). In comparison, less cognitive effort is required when relying on stereotypes as any nuances and inconsistencies between identity cues can be ignored in favour of the broad assumptions made in the stereotype (Macrae, Milne & Bodenhausen, 1994).

Some researchers have demonstrated that a reliance on stereotyping is more common when people form impressions of people with whom they are familiar such as close friends and family rather than people with whom they are unfamiliar such as new housemates or coursemates (Häfner & Stapel, 2009; Smith, Miller, Maitner, Crump, Garcia-Marques & Mackie, 2006). An explanation for the reliance on stereotyping amongst familiar others is that individuals make effortful attempts to get to know others whom they do not already know but do not need to be so effortful with established relationships. The more effortful attempts to get to know unfamiliar others may result in stereotypes being quickly disproven by the inconsistencies and nuances in

identity cues that are rapidly encountered when first getting to know each other. After time and when relationships become more established, individuals are more familiar with the norms of others' behaviour and can more accurately gauge which stereotypes are appropriate for a particular social target meaning that they need not attend to the inconsistencies and nuances in that person's behaviour that have already been resolved instead relying on stereotypes to guide their impressions.

During the focus groups, however, students used stereotypes to guide impressions even when they were very unfamiliar with their new coursemates and housemates. Although stereotypes are apparent irrespective of the environment of encounter, social network sites and online environments may be particularly prone to stereotyping irrespective of the familiarity of the person about whom impressions are formed (Jacobson, 1999). As discussed in the Literature Review in Chapter 2, the proneness to stereotyping may be due to the absence of detailed, inconsistent identity cues used to form nuanced impressions (e.g. limited content being posted on profile pages), those identity cues being protected or hidden from the audiences forming impressions (e.g. privacy settings preventing access to particular content, particularly if two housemates have not formally establishing a friendship connection on Facebook), or those identity cues being otherwise problematic to access (e.g. people may avoid asking probing questions because such questions are perceived as socially unacceptable during the early stages of a relationship).

When detailed identity cues are unavailable, such as access to content being protected by privacy settings, impressions may rely on stereotypes elicited from the limited identity cues remaining (Hancock & Dunham, 2001; Lea &

Spears, 1995; Reicher, Spears & Postmes, 1995; Walther, 1997). The accuracy of those stereotypes about an individual would not be challenged due to the absence of inconsistent or contrary identity cues that would otherwise result in more individualised, detailed impressions tailored to the social target being considered (Walther, 1997).

People also tend to rely on stereotypes when they are less concerned about the accuracy of their impressions (Fiske & Neuberg, 1987). Comparatively, people who are particularly concerned about the accuracy of their impressions tend to expend more cognitive effort in forming individualised, bespoke impressions and rely less of stereotypes. The role of accuracy is pertinent when considering another theme from this analysis, namely that students are sceptical of the impressions made on social network sites compared to from face-to-face encounters. Given their scepticism, the students may have been unconcerned with forming extremely accurate impressions of their housemates and coursemates on social network sites. Following from Fiske and Neuberg's argument, the students who were unconcerned with accuracy likely expended little effort forming individualised, bespoke impressions of their housemates and coursemates on social network sites. Instead, the students may have relied more on stereotypes to form impressions and reserved making more individualised, tailored impressions until they had access to what they perceived to be more verifiable, accurate identity cues when they met face-to-face at university.

*Impressions formed from various encounters on social network sites*

Students formed impressions from two broad groups of encounters, referred to as strategies, on social network sites. A passive strategy refers to a group of encounters that do not require any direct interaction between the student and the social target about whom an impression is formed. Examples of encounters aligned to the passive strategy include viewing Facebook photographs in which a coursemate is tagged, or reading the wall posts and comment threads of group of people of coursemates in a Facebook group. Comparatively, an interactive strategy refers to a group of encounters that involve direct interaction with a social target. An example of an encounter aligned to the interactive strategy includes students asking questions in a two-way discussion with a new housemate using the private messaging features on the website (e.g. Facebook Chat), or conversing with housemates in a comment thread for an event or group page. The suggestion that students form impressions from passive and interactive strategies was unsurprising given a wealth of previous research identifying that people often use those two strategies when getting to know a specific individual on social network sites (Antheunis, Valkenburg & Peter, 2010), dating websites (Gibbs, Ellison & Lai, 2010), other online environments (Ramirez, Walther, Burgoon & Sunnafrank, 2002) and offline environments (Berger, 1979; Berger & Bradac, 1982). However, research has yet to explore if the strategies are linked to how confident people are in their impressions about a group of people nor whether the strategies can even be applied to model how people get to know a group.



*Scepticism about impressions*

Many students approached their impressions with scepticism, lacking confidence in their impressions about their housemates and coursemates which they had formed on social network sites. The theme of scepticism is mirrored in existing research that has investigated impression formation on social network sites and other online environments including dating websites and instant messaging. Specifically, people tend to be less confident about their impressions formed from online encounters compared to their impressions formed from face-to-face encounters, often perceiving their impressions from online encounters as inferior and less credible (Lea & Spears, 1995; Walther, Van Der Heide, Hamel & Shulman, 2009).

Many students described their impressions formed from encounters on social network sites being inferior to those formed from face-to-face encounters. The perceived inferiority of impressions formed on social network sites is relevant when considering whether cues-filtered in or cues-filtered out theories can account for students' impressions reported in the focus groups. As discussed in the literature review in Chapter 2, proponents of cues-filtered out theories suggest that impressions formed from online encounters are inferior and limited compared to impression formed from face-to-face encounters (e.g. Culnan & Markus, 1987; Daft & Lengel, 1984; Kiesler, Siegel & McGuire, 1984; Sproull & Kiesler, 1986; 1991). Comparatively, proponents of cues-filtered in theories suggest that identity can be adequately communicated in online environments and that those cues are the basis of forming impressions from encounters in those environments (e.g. Reicher, Spears & Postmes, 1995; Walther, 1992; 1996; Walther & Burgoon, 1992; Walther & Parks, 2002).

Based on the focus groups, students' impressions might initially appear aligned with a cues-filtered out perspective. However, the cause that students proposed as underlying the inferiority of impressions did not match the cause outlined by proponents of cues-filtered out theories. Proponents of cues filtered-out theories purport that impressions formed from online encounters are inferior due to a dearth of identity cues available in online encounters compared to face-to-face encounters where such identity cues are abundant (Daft & Lengel, 1984). To support a cues-filtered out perspective, the identity cues would need either not be present or would be extremely difficult to communicate on social network sites (Daft, Lengel & Trevino, 1987; Walther & Parks, 2002).

In the focus groups, however, students did not mention an absence of identity cues when discussing the inferiority of the impressions that they formed on social network sites. Instead, students appeared to have formed impressions with ease from a range of encounters aligned to the passive and interactive strategies. Forming impressions from those encounters is contingent on identity cues being present which is counterintuitive to a cues-filtered out perspective. Instead, the presence of identity cues is more indicative of a cues-filtered in perspective which purports that identity cues are present and can be communicated through an online medium for people to attend towards when forming their impressions.

Despite attending to identity cues and forming impressions with ease, the students cited that the inferiority of their impressions was due to their distrust in the accuracy of encounters on social network sites compared to face-to-face encounters. Students justified that the distrust of their impressions based on

encounters on social network sites being more open to manipulation through self-enhancement than face-to-face encounters.

The suggestion that self-enhancement influences scepticism towards users' own impressions mirrors arguments commonly given by users and researchers in other online environments including dating websites (e.g. Ellison, Hancock & Toma, 2012; Gibbs, Ellison & Heino, 2006; Gibbs, Ellison & Lai, 2011; Lea & Spears, 1995). Proponents of the Hyperpersonal Model have highlighted how identity cues can easily be manipulated on dating websites, chatrooms, online forums and social network sites due to the cues not being as strictly bound by the constraints of physical reality inherent in face-to-face communication (e.g. Gibbs, Ellison & Heino, 2006; McKenna, Green & Gleeson, 2002; Walther, 1996; Zhao, Grasmuck & Martin, 2008). Instead, users of social network sites can make slightly more socially enhanced claims about themselves in terms of physical ability, appearance or their behaviour compared to face-to-face encounters (DeAndrea, 2014). It should however be noted that users' self-enhancement is likely to be more restrained on social network sites than other more anonymous online environments such as chatrooms and dating websites because social network sites involves an audience of the users' friends and family who have a frame of reference to identify and denigrate significant misrepresentation (Zhao, Grasmuck & Martin, 2008).

Similarly, users of social network sites can more easily underemphasise the negatively connoted, undesirable aspects of their self-presentation whilst emphasising the positively connoted, desirable aspects in comparison to face-to-face encounters which occur in real-time (Marder, Joinson, Shankar & Houghton, 2016). Significant effort is required to monitor face-to-face behaviour

in real-time and to suppress knee-jerk reactions of negativity such as annoyance and frustration (Wallace & Tice, 2012). Comparatively, social network sites are asynchronous therefore users are not required to interact in real-time. Instead, users can take time to selectively present a positive and desirable image of themselves by crafting responses to messages that they can modify both before and after sending, strategically choosing the content that they want to share, and selectively removing content that they do not want others to view (boyd, 2010; Treem & Leonardi, 2012; Marder, Houghton, Joinson, Shankar & Bull, 2016).

The students' use of trustworthiness to justify their scepticism aligns closely with Walther and Parks' (2002) Warranting Theory. Walther and Parks (2002) highlighted that identity cues that are perceived as more open to manipulation are trusted less and have less of an impact and presence in the resultant impression than identity cues that are considered less open to manipulation (Walther & Parks, 2002; Walther, Van Der Heide, Hamel & Shulman, 2009).

Warranting Theory proposes which identity cues might be more trustworthy than others although one such proposed distinction was not evidenced in the students' focus groups. People consider identity cues about profile owners to be more trustworthy when originating from a third-party (e.g. a friend or family member) compared to the profile owner (Walther et al., 2009).

The distinction between other- and self-generated identity cues did not emerge in the focus groups although that may be explained by a high degree of self-presentation concerns that students experience during the weeks prior to starting university. In the focus groups, students discussed sanitising their profile pages by removing content that their new housemates and coursemate might

otherwise have viewed as undesirable. Sanitising profile pages may have extended beyond students removing the content that they themselves had shared but also removing content that existing friends and family had shared on their profile page.

The sanitising of self- and other-generated identity cues was not probed in the focus groups although previous research has demonstrated that people censor the posts of other people on social network sites particularly when there are significant self-presentation concerns as would be expected during university transition (Johnson, Egelman & Bellovin, 2012; Lampinen, Lehtinen, Lehmuskallio & Tamminen, 2011; Raynes-Goldie, 2010). If there was an expectation that housemates and coursemates had removed or hidden content posted by others on their profile pages, then students could have treated other-generated identity cues with a similar level of scepticism as self-generated identity cues hence there being no emergent distinction between the two sources of identity cues in the focus groups.

In the focus groups, students discussed norms of sanitising their profile pages. One norm was removing old photographs and wall posts that could feasibly be perceived as undesirable by others. The students highlighted that not only did they engage in such sanitising behaviour but there was a broad awareness and expectation that sanitising was commonplace amongst students in the weeks prior to starting university. The students discussed how the housemates and coursemates that they formed impressions about had likely engaged in similar sanitising of their profile pages and therefore they were sceptical about their impressions accordingly.

An awareness of other students sanitising their profile pages mirrors research findings involving dating websites. Online daters tend to share an expectation that content on online dating profiles is commonly manipulated to present the profile owner as more desirable and therefore treat content from those profile pages with scepticism (Ellison, Hancock & Toma, 2011). In online dating, the manipulation commonly takes the form of self-enhancement including users describing themselves as slightly thinner, younger, more athletic and outgoing than might be the case (Ellison, Hancock & Toma, 2011; Whitty, 2002; 2008). Unlike most research involving online dating which focuses on how users share overly positive desirable content about themselves, the focus groups in this study highlights the removal of undesirable content is a understood norm of how people manage their self-presentation online. The emergence of the sanitising norm on social network sites is likely due to profile pages offering a much more substantive set of content shared by multiple users over many years whereas dating websites tend to involve much less substantive content that is the result of the contributions made by the profile owner themselves over a shorter period. The more substantive set of content on social network sites requires greater honing, including the removal of inappropriate or undesirable content that others have posted some years previously when the content may have been desirable or acceptable, compared to online dating where much less content is available for removal that would have been inappropriately posted.

Further research should explore how users' perceptions and expectations of behavioural norms for self-presentation affects their impressions beyond comparisons between self- and other-generated identity cues. Feasibly, users' expectations of sanitising content could be affected by the social scenario within

which impressions are being made. For example, users could expect that sanitising online content is most common when going through a life transition particularly when those transitions involve meeting a large group of new people (e.g. starting a new job, starting university). The expectation for sanitising content would be reasonable given that self-presentation concerns are higher when getting to know a group of strangers than a group of friends and family (Duval & Wicklund, 1972; Froming, Walker & Lopyan, 1982; Goffman, 1959). For those users with that expectation their scepticism towards impressions formed from social network sites may be more prominent during major life transitions compared to when they are not going through a major transition, even if the encounters on social network sites were similar or identical.

Users' expectations of sanitising content could also differ on a feature-by-feature basis and in turn those differing expectations could affect the extent that people rely on particular encounters when forming impressions. Students in the focus groups only discussed photographs and wall posts being removed from profile pages based on self-presentational concerns in the weeks prior to starting university. There was an absence of students reporting having sanitised other more static content (e.g. list of preference information including 'likes'; the written autobiographical 'About me' section of Facebook). The absence may be due to social network sites such as Facebook displaying photographs and wall posts more prominently on profile pages than other content (Feinberg, 2014; Hahn, 2014).

Due to photographs and wall posts being so prominent for others to view, profile owners may focus their attention on sanitising photographs and wall posts rather than less prominent content (e.g. 'About me' section and 'likes'). In turn,

people forming impressions from social network sites may treat photographs and wall posts with a high degree of scepticism due to a perception that content involving those features are more commonly sanitised than other features. Further research should explore whether different expectations about how people sanitise content on social network sites affects impression formation or not. An experimental study could explore how impressions are affected when only some participants are informed that users of a social network site tend to censor and remove photographs more often than wall posts. If the participants' impressions were affected by varying the expectations of self-presentation for different features then the findings would highlight feature-by-feature differences in warranting value beyond those which are already understood including the source of identity cues being self- or other-generated (e.g. Antheunis & Schouten, 2011; Jin, 2013; Utz, 2010; Walther, Van Der Heide, Kim, Westerman & Tong, 2008).

When considering that the impressions which students lacked confidence about would often have been formed from passive and interactive strategies, it is pertinent to mention the work of other researchers who have already investigated how confident people are about their impressions formed from passive and interactive strategies.

As discussed in the literature review in Chapter 2, Antheunis, Valkenburg and Peter (2010) reported that people tend to be more confident about their impressions formed from encounters aligned to an interactive strategy such as chatting via an instant messaging feature of a social network site. In comparison, Antheunis et al. reported that passively viewing another's Facebook profile was not linked to how confident people were in their impressions of others. A



difference in students' confidence between passive and interactive strategies was not identified in the current study although that may be due to the focus group discussions not being granular enough for the distinction to emerge. However, Antheunis et al. only explored how confident people were about their impressions of a *specific individual*. In the current study, Antheunis et al.'s findings were useful when discussing students' impressions about a specific individual such as a specific housemate or coursemate from their future university. It is unclear whether Antheunis et al.'s findings would extend to impressions about other types of social targets identified in this study including a group of people.

#### *Egocentric impressions*

Students formed egocentric impressions insofar that their impressions of others were often related back to themselves in some capacity. The egocentric nature of students' impressions aligns with existing research involving social comparisons whereby people understand themselves by making comparisons between themselves and other people (Festinger, 1954; Haferkamp & Krämer, 2011; Johnson & Knobloch-Westerwick, 2014; Kruglanski & Mayseless, 1990; Lee, 2014; Suls, Martin & Wheeler, 2002). Festinger (1954), for example, proposed that people compare themselves to others to obtain more accurate appraisals of their own abilities. Accurate appraisals are important due to the negative, potentially fatal consequences of having inaccurate conceptions of their own ability. People who overestimate their abilities may take problematic, life-threatening and miscalculated decisions on a regular basis which can have an impact physically and socially (Leary, 2004).

Per Festinger's theory, students using social network sites in the weeks prior to starting university may have compared themselves to their peers to gain a more accurate understanding of their own abilities and subsequently gauge the likelihood of failure when faced with the social and academic challenges of university. The impressions that students formed about others may have been the basis upon which they could make comparisons to themselves and gain a more accurate understanding of their own abilities. Students in the focus groups might have used their impressions about the academic ability of their coursemates as baseline to make comparisons with themselves and more accurately judge their own ability to succeed on their forthcoming academic course.

In the university transition scenario, social network sites offer a useful environment to make social comparisons because students have access to a range of identity cues about individuals with whom they might not otherwise have encountered until having arrived at university some weeks later. If trying to understand their ability to successfully tackle forthcoming academic and social challenges, the students comparing their attributes (such as their intelligence and outgoingness) to others may be a more efficient use of limited cognitive resources than iteratively considering each of those attributes without reference to and in isolation from other people (Mussweiler & Epstude, 2009). For students transitioning to university, iteratively considering their intelligence and outgoingness without resorting to comparison to others would be very difficult because the students would have had limited experience of university-level academic and social challenges to gauge what is an acceptable norm or baseline for success.

People undertaking major life transitions, including students transitioning to university, may be prone to making social comparisons and therefore adopting an egocentric approach to impression formation. During major life transitions, people often have limited experience of the challenges in their forthcoming new environments and are therefore uncertain of their ability to tackle those challenges (Higgins, Loeb & Ruble, 1995; Ruble, 1994). The uncertainty that people experience when undertaking major life transitions may act as a catalyst for people to form accurate evaluations of themselves by making social comparisons with relevant others.

The adolescent nature of most students during transition to university may have also made the students prone to forming egocentric impressions through social comparisons. Most students in the UK start university during adolescence, often between eighteen and nineteen years of age (Higher Education Statistics Agency, 2015). Adolescence is a period particularly prone to self-evaluation and is characterised by a malleable, less stable sense of self or 'self-concept' (Brinthaup & Lipka, 2012). The malleable self-concept emerges from changes during adolescence compared to earlier childhood including an increased cognitive capacity for self-perception, a greater diversity of social relationships, new social experiences, an increased autonomy from parents, increased connectedness with peers, physical changes, and increased attention to gender and social norms (Harter, 1999). The malleable self-concept can result in adolescents being less certain and experiencing ambiguity about their own abilities, identities and likely success tackling challenges that face them (Brinthaup & Lipka, 2012; Harter, 1999). The egocentric nature of students' impressions may be an artefact of students comparing themselves to others to

understand themselves during a period of self-concept ambiguity associated with adolescence, accentuated by the ambiguity associated with the major life transition from school into university.

The increased period of uncertainty associated with adolescence and the major life transition to university may also explain why many students were worried and disheartened after comparing themselves to others. Wills (1981) explained that people compare themselves to others to maintain a positive self-image and maintain their own self-esteem. People often compare themselves to others and deem that they are superior to those others in some capacity (Johnson & Knobloch-Westerwick, 2014). These 'downward comparisons' allow people to perceive themselves as relatively more successful than others which raises their self-esteem as they feel more positive about themselves (Buunk & Gibbons, 2007; Gibbons, 1986; Smith, 2000).

However, several students in the focus groups described feeling uneasy after determining that they had inferior intelligence compared to their coursemates. These 'upward comparisons' involve people perceiving themselves as worse off than others which reduces their self-esteem as they feel less successful and more negative about themselves (Aspinwall, 1997; Buunk, Kuyper, & Van der Zee, 2005; Collins, 1996). Students may be particularly prone to negative self-evaluations after engaging in upward comparisons because their malleable self-concept is more unstable and less resistant to challenge compared to older adults whose self-concept is more established and fixed after having already undergone challenges during their own adolescence and major life transitions. Unlike students whose self-esteem may be challenged by upward social comparisons, adults with a more stable sense of self may be more prone to

compare themselves to people they see as superior and realise their desire for self-improvement by using others as templates rather than seeing themselves as a failure (Taylor & Lobel, 1989).

The design of social network sites might also encourage social comparisons, including upward comparisons that can result in negative self-evaluation particularly amongst students with a less stable self-concept. (Johnson & Knobloch-Westerwick, 2014). Social network sites foster an experience of privacy when viewing others on the websites (boyd, 2010). Viewing others' photographs on Facebook can be a more private, anonymous experience than watching or interacting with another person face-to-face because individuals can look at accessible profiles on social network sites without detection. Profile owners are not alerted that they are being viewed unlike face-to-face encounters where observing people is difficult to disguise due to the requirement of being physically co-present (boyd, 2010; Ramirez, Walther, Burgoon & Sunnafrank, 2002; Suler, 2004).

The private, anonymous experience of viewing others on social network sites is pertinent to negative self-evaluations because a range of experiments have demonstrated that individuals are more likely to engage in upward comparisons when they can do so anonymously rather than when expecting immediate in-person interaction (Gibbons et al., 2002; Smith & Insko, 1987; Wilson & Benner, 1971; Ybema & Buunk, 1993). The anonymous experience of browsing and using a passive strategy on social network sites may lead to an increased propensity for people to engage in upward comparisons. Populations already at-risk of having malleable self-concepts, such as adolescent students due to undergo a major life transition to university, are therefore making social

comparisons based on anonymous encounters on the very websites that encourage upward comparisons from which negative self-evaluations can result.

Beyond social comparisons, analysis of the focus groups highlighted that egocentric impressions can be formed not just by passively viewing a Facebook profile but also by silence or delay from the communication partner in an interaction. The effects of silence and delays on impression formation are important when considering the technological affordances of social network sites, specifically the asynchronous nature of communication. On social network sites, interactive communication need not occur as a real-time back and forth wherein two or more communication partners are online at the same time (boyd, 2010). Instead, the asynchronous nature of the interaction means that one user can send messages irrespective of the recipient being online, near a computer, using a mobile phone or interacting through social network site in any other manner (Kalman, Scissors, Gill & Gergle, 2013). The recipient can then read the message at their own choosing which might be immediately, the next time that he or she logs onto the website using an Internet-connected device, or at any other time of their choosing if ever.

Given the asynchronous nature of communication on social network sites, the recipient of a message might not immediately respond for a variety of reasons including their deferring the response until a later time, choosing never to respond, not reading the message, or being unaware or incapable of reading the message (Kalman, Ravid, Raban & Rafaeli, 2006; Kalman, Scissors, Gill & Gergle, 2013). When there is a delay in the recipient replying, the sender of a message on social network sites often receives no feedback leading to an ambiguity as to why the recipient has failed to respond to the message (Cramton,

2001; Panteli & Fineman, 2005; Walther & Tidwell, 1995). In the absence of feedback, the response delay can be uncomfortable for the sender and affect their impressions of the recipient insofar that longer delays often lead to more negative impressions (Kalman & Rafaeli, 2011; Walther & Tidwell, 1995; Walther, 2011). Negative impressions can include recipients being considered rude, extremely busy or (in the case of the focus groups) that a relationship will not be successful and that the recipient does not like him or her.

Negative impressions may be accentuated due to senders having a high expectation of a reply based on the norms of synchronous communication mediums, such as face-to-face communication, that communication is a rapid back-and-forth interaction process (Kalman & Rafaeli, 2011). Similarly, the negative impressions may also be accentuated by the importance that the sender attributes to the outcome of an interaction (Darics, 2014). In the university transition scenario, the recipient is often a housemate or coursemate that the student sender expects to be interacting with frequently and unavoidably after having arrived at university. Consequently, the importance attributed to the success of such an interaction and social relationship is relatively high as indicated in the social worries that students have about their future social lives at university including how well they will integrate with their housemates (Brooks, 2005). Given the high importance that students attribute to the success of their social relationships at university, the failure to secure a response is likely met with increased attention and uncertainty especially because there is no clear reason for the silence.

*Impression formation and worries about university*

A common theme was that students' impressions manifested the types of worries that were pertinent to the academic and social aspects of their future university experience. The dominance of academic and social worries in impressions was unsurprising given that those are the most common worries experienced by students during their transition to university (Brooks, 2005).

The finding that worries permeated students' impressions highlighted another area requiring further investigation. Existing research has linked encounters on social network sites with a person's experience of worry but without any reference to impression formation. Researchers have demonstrated that encounters on social network sites can promote or alleviate a person's experience of both worry and anxiety (e.g. Chen & Lee, 2013; Kim & Lee, 2011; Rosen, Whalin, Rab, Carrier & Cheever, 2013; Wise, Alhabash & Park, 2010). In a near-identical university transition scenario to that explored in this study, DeAndrea, Ellison, LaRose, Steinfield and Fiore (2012) linked encounters on social network sites with students' worries about university albeit they made no reference to impression formation. No researchers have suggested that impression formation could explain the relationships between a person's encounters on social network sites and their experience of worry. Consequently, the current study was the first to propose that impression formation could play a role in the relationship between a person's encounters on social network sites and his or her experience of worry. Further research is required to understand if impression formation plays any role in that relationship, particularly given that causal inferences cannot be made from the focus group studies.



The current study is insufficient for understanding whether the strategy that a person used to get to know others on a social network site influences impression formation and therefore also influences a person's experience of worry. If there are important differences between passive and interactive strategies, it is unclear whether certain strategies on social network site are more likely to lead to impressions that alleviate or heighten a person's worries.

When considering the role that students' confidence about their impressions plays in the relationship between worries and impression formation, a range of unanswered questions emerge that should be the focus of more research. For example, is a student's confidence in his or her impression linked to how worried he or she is about university? Is this restricted to certain types of worries, such as social worries but not academic worries? Are certain types of social network site encounters, such as passively viewing a coursemate's Facebook profile, more likely to make students more confident and therefore less worried about university compared to other strategies, such as interacting with a coursemate via Facebook chat or a communal Facebook group? Are the links between confidence and worries strongest when considering impression formation about a group of people rather than impression formation about a specific individual? Despite the questions remaining unanswered by the current study, those questions were raised for the first time because of this focus group study exploring impression formation in a common, contextualized, and ecologically valid social scenario.

#### *Time lapse*

Students discussed their impressions several months after they had originally formed them. The approach allowed students to be critical of their impressions

using hindsight and to highlight differences in students' impressions despite being based on the same encounters. For those students who had difficulty recalling their impressions, the presence of other students in the focus group acted as a prompt to help remember events and impressions that might have otherwise been forgotten. The approach of recalling impressions several months after the event was deemed appropriate because early impressions persevere over time and are difficult to alter even when subsequent events challenge those impressions (Rabin & Schrag, 1999; Tetlock, 1983).

Feasibly, however, some students' impressions of their peers could have been clouded by more recent impressions and events that emerged after having a more established, immersive social relationship when living and studying together. The effect may be particularly pronounced when impressions or relationships had become more negative since meeting each other at university. Forgas (2011a) highlighted that although initial impressions can persist in memory over time, the recall of those first impressions become significantly more difficult when an individual is in a negative mood rather than a positive mood at the time of recall. Similarly, both Bird (1987) and Lingle and Ostrom (1979) demonstrated that early impressions can be affected by subsequent negative events insofar that the memory of the early impression is much more difficult to retrieve than when those negative events did not occur. Though the critical debate and discussion encouraged during focus groups may have helped improve memory, the potential for current impressions clouding the memory of original impressions remains therefore further research should identify impressions during or near-immediately after the moment that the students formed their impressions rather than several months afterwards.

### *Conclusions*

This study made two findings that have not been previously reported in the research investigating impression formation on social network sites. First, students form impressions about groups of people on social network sites, rather than just forming impressions about a specific individual. Various questions have been raised concerning impression formation about a group of people, particularly within the context of existing findings in the field and other findings that emerged in this study including the extent that students are sceptical of their impressions. Given those questions and a lack of existing research in the field, a further investigation is required to understand impression formation about a group of people. For instance, research is required to compare whether different strategies used to get to know others on social network sites are linked to how confident students are in their impressions of groups of people formed on social network sites.

This study also identified a link between impression formation and worries not previously reported in the research literature involving encounters on social network sites. A proposition was made that the students' confidence in impressions was linked to students' worries about university. The link between impression formation and worries remains vague given that the current study was exploratory and was not designed to study the role of worries in depth.

Given the need for future research including research on impressions closer to the time that they were originally formed, the next chapter in this thesis (Chapter 4) will explore impression formation about a group of people on social

network sites. The study will also explore how students' confidence in their impressions is linked to their worries.

## **Chapter 4 – Investigating students’ worries and how they form impressions about groups of people on social network sites**

### **Introduction**

#### *Forming impressions about a group of people*

The literature review in Chapter 2 critically discussed how people get to know and form impressions about each other during early stages of a relationship on social network sites (e.g. Antheunis & Schouten, 2011; Utz, 2010; Van Der Heide, D’Angelo & Schumaker, 2012). In Chapter 3, a focus group study identified an aspect that researchers investigating social network sites have failed to consider to date: that people form impressions about *groups of people*, such as their housemates as a group or coursemates as a group, during early stages of a relationship on social network sites. Most students in the focus groups formed impressions not only about a specific coursemate from his or her Facebook profile page but also formed impressions about their coursemates as a group of people (“the people on my course”; “my new coursemates”; “they [my coursemates] seemed...”). The students’ impressions of their coursemates as a group ranged from their coursemates being more intelligent than themselves to their coursemates being very friendly and similar to them.

Little is understood about impressions of a group other than that people do indeed form those impressions. Consequently, this chapter will continue the aim of the thesis to explore how people form impressions of each other during early stages of a relationship on social network sites by reporting a questionnaire study that focuses entirely upon impression formation about a *group of people*.

*Strategies that people use to when first getting to know a group of people*

In Chapter 3, a focus group study demonstrated that students can get to know a group of people, including their new housemates or their coursemates, for the first time using different strategies on social network sites. Many students formed impressions of their coursemates after passively viewing a few of their coursemates' Facebook profile pages. Students reported forming impressions from viewing specific parts of profile pages including their new coursemates' profile images, tagged photos, status updates, and mutual likes. Similarly, students formed impressions about a group of their housemates after publically interacting with them using Facebook's Groups functionality or chatting more privately with one or two of them via Facebook Messages or Facebook Chat.

Research literature detailing how people get to know a *specific individual* may be useful for understanding how people get to know a *group of people*. The literature review in Chapter 2 identified that people try to get to know a specific individual on social network sites through at least four broad types of encounter, often referred to as 'information seeking strategies'. Those four broad types of encounters are the passive, interactive, active and extractive information seeking strategies described below:

1. **Passive strategy** - a passive strategy involves encounters whereby an individual unobtrusively observing others though without any direct interaction (Berger & Bradac, 1982). On social network sites, an encounter aligned to the passive strategy could involve viewing a coursemate's photographs on Facebook or viewing a housemate's tweets

on Twitter (Antheunis, Valkenburg & Peter, 2010; Wise, Alhabash & Park, 2010).

2. **Interactive strategy** - an interactive strategy involves encounters whereby an individual directly interacts with other people. On social network sites, an encounter aligned to the interactive strategy could involve asking questions of a new coursemate or housemates either privately (Gibbs, Ellison & Lai, 2011; e.g. Facebook Chat) or publicly (e.g. Tweeting; posting and commenting to each other on a Facebook Group).
3. **Active strategy** - an active strategy is more indirect and involves encounters whereby an individual proactively eliciting information about others without direct interaction with them (Baxter & Wilmot, 1984). For social network sites, an encounter aligned to the active strategy could involve contacting a mutual friend to ask questions about a new coursemate or housemates.
4. **Extractive strategy** – an extractive strategy involves encounters whereby an individual retrieves older, more archival information about target others from a database such as a search engine (Ramirez, Walther, Burgoon & Sunnafrank, 2002; e.g. Facebook Search). As discussed in the Literature Review in Chapter 2, there is difficulty disentangling the passive and extractive strategies because both involve an individual observing others though without any direct interaction. The extractive

strategy, however, involves the retrieval of older, archival content whereas the passive strategy involves access to more current, recent content.

People use some of those strategies when getting to know others on social network sites (Antheunis, Valkenburg & Peter, 2010), on more traditional online environments such as chatrooms, email and newsgroups (Ramirez, Walther, Burgoon & Sunnafrank, 2002), and face-to-face (Berger, 1979). However, researchers have only explored the strategies in circumstances where people are getting to know a *specific individual*.

Based on the absence of previous research, it was unclear if students use the same four strategies when getting to know a *group of people* on social network sites in the weeks prior to starting university. A group of coursemates is made up of individual coursemates each of who can have their own unique profiles on a social network sites. In addition, each of those coursemates are identified as individuals on social network sites when they share content or interact with each other in a group as well as when they do the same with other individuals and group. Consequently, the strategies that students use to get to know an individual may also have be used when getting to know a group of people. The dearth of existing research means that the suggestion is tentative and required investigation hence the study reported in this chapter posed the following research question:

- Research question 1: What strategies do students use when first getting to know a group of people on social network sites?



*Confidence in impressions about a group of people*

As reported in Chapter 3, many of the students in the focus groups lacked confidence in their impressions about a group of people, including their future housemates and coursemates, during the early stages of a relationship on a social network site during the weeks prior to starting university. Students ranged in the extent that they were confident about their impressions, however. Some students were very confident in their impressions of their housemates and coursemates whereas other students were less confident in their impressions.

The extent that students ranged in confidence about their impressions about others resonated research that has investigated impressions about a specific individual. Various researchers, detailed in the literature review in Chapter 2, have explored how confident people are in their impressions formed from social network sites and elsewhere. Some of those researchers have identified which of Berger's (1979) passive, interactive and active strategies are related to how confident people are in their impressions of that individual. Antheunis, Valkenburg and Peter (2010) conducted an online questionnaire study exploring how users of the Hyves social network site formed impressions about a specific individual that they had only recently met on a social network site in the preceding thirty days. Only an interactive strategy, which involves encounters such as communicating using private messaging features, was related to how confident people were about their impressions of their new acquaintance. The more frequently that the participants used an interactive strategy to get to know their new acquaintance, the more confident that they were of their impressions of that individual. Neither an active nor a passive strategy, which involves

encounters such as viewing another individual's preferences or 'likes', were linked to how confident people was in their impression of their new acquaintance. An extractive strategy was not measured.

The same strategies used by participants in Antheunis et al.'s study might be (un)related to how confident the students in the focus groups in Study 1 were about their impressions of a group of people at their university whether the group was their housemates, their coursemates, or the general types of people who attend their university. However, the absence of previous research means that such a proposition cannot be supported without further examination, hence the study reported in this chapter also posed the following research question:

- Research question 2: What is the relationship between the strategies that students used to get to know others on social network sites and how confident they are in their impressions about a group of people?

*Worries, and the role of confidence in impressions about a group of people*

In Chapter 3, many students formed impressions that were in some way related to their worries about university. For example, some students mentioned that their housemates seemed to be unsociable and more intelligent than them, marking worries about the social and academic aspects of their future university experience. Other students highlighted that their housemates were friendly and as equally unknowing about their subject or university life as themselves, challenging worries about the academic and social aspects of their future university experiences. In both examples, the students' impressions were in some way related to their worries about university irrespective of whether the

impression supported or challenged that worry. The presence of social and academic worries alongside students' impressions was pertinent given that those types of worries are very common amongst students in the weeks before starting a new university (Brooks, 2005).

A restricted but steadily increasing range of research has explored the relationship between a person's wellbeing and his or her use of social network sites (e.g. Burke, Marlow & Lento, 2010; Kim & Lee, 2011; Manago, Taylor & Greenfield, 2012; Steinfield, Ellison & Lampe, 2008; Yang & Brown, 2013) although none of that research has explored the role that impression formation might play in wellbeing. However, research involving face-to-face meetings could help to understand the link between the students' worries and impression identified in the focus groups in Chapter 3. Berger and Douglas (1981) have theorised that people experience anxiety when they are uncertain about others with whom future interaction is unavoidable (Douglas, 1987).

Berger and Douglas' theory resonates with another finding identified in Chapter 3. Many students reported taking comfort from forming impressions about the general types of people at their university after encountering them on a social network site. Similarly, other students reported being uncomfortable when they did not have the opportunity to form impressions about the general type of people at university, including when they were unable to find their coursemates on Facebook or other social network sites in the weeks prior to starting university. Berger's and Douglas' theory can be extrapolated to students' worries about university insofar that students' confidence in their impressions may be related to their worries about university. The extrapolation seems particularly appropriate for the university transition scenario considered in this thesis because

many students will have a reasonable expectation of interacting with each other once having arrived at their new university, and that even minimal interaction will be difficult to avoid due to the nature of shared accommodation and courses.

As discussed earlier in this Introduction, Research question 2 focuses on whether certain strategies that students use when getting to know a group of people in the weeks prior to university are related to how confident the students are in their impressions about those groups of people. Very little is understood about whether different strategies, such as the passive and interactive strategies are also be linked to students' experience of worry. Based on Berger and Douglas' theory, however, a statistical relationship should be expected between the intensity of students' worries about university and the strategies that that they use on social network sites to get to know a group of people. In addition, part of that statistical relationship should be explained by how confident students were in their impressions about the group of people that they encountered. If only certain strategies on social network sites are related to how confident students are about their impressions then those same strategies should also be related to the intensity of students' worries about university.

The theorised relationship between students' confidence in their impressions and the intensity of their worries, however, was only a suggestion that might help elucidate the findings of the focus group study reported in Chapter 3. At the time of writing, however, no research had explored whether the link between the strategies the people used on social network sites to get to know others and those people's worries can be explained by how confident students are in their impressions. Further research is required to explore and validate such an explanation hence the following research question:

- Research question 3 What is the relationship between the strategies that students use to get to know others on social network sites and how worried they are about university? Can the relationship between explained by how confident students are in their impressions about a group of people?

## **Method**

### *Design*

An online questionnaire study explored how individuals form early impressions about a group of people from different strategies on social network sites in an applied scenario, namely incoming first year undergraduates forming impressions about the general type of people at their university in the weeks prior to arriving at university. The questionnaire study was designed to identify the strategies that students use when first getting to know a group of people of the people at their university. The study was also designed to identify the relationships between those strategies, students' confidence in their impressions of a group of people at their university, and their worries about university (academic, social and psychological).

### *Participants*

Two hundred and thirty-three incoming undergraduate students (171 female, 62 male) completed an online questionnaire prior to starting a new undergraduate degree at one of 29 universities in the United Kingdom. Students were aged from 17 to 54 years, with a mean age of 19.20 years (*SD*: 3.91) although most were

aged 17 to 23 years ( $n=220$ ; 94.42%). Most students originated from the UK ( $n=180$ ) compared to within ( $n=37$ ) or outside of Europe ( $n=16$ ). The age range and the country of origin for the sample broadly matches the age range of undergraduate students attending UK universities (Higher Education Statistics Agency, 2015).

Students were due to study the following broad subject areas: Social sciences ( $n=61$ , 26.18%), Physical sciences and Engineering ( $n=60$ , 25.75%), English Literature and Performance Arts ( $n=27$ , 11.59%), Business and Management ( $n=22$ , 9.44%), joint degrees ( $n=13$ , 5.58%), Humanities ( $n=11$ , 4.72%), Mathematics ( $n=10$ , 4.29%), Medicine ( $n=10$ , 4.29%), Languages ( $n=9$ , 3.86%), Education and Teaching ( $n=5$ , 2.15%) and Law ( $n=5$ , 2.15%). The subjects studied by the sample were roughly equivalent to the current student demographic at UK universities (Higher Education Statistics Agency, 2015).

All students used Facebook, representing the high penetration of Facebook within the UK (OfCom, 2014). Fewer students used Twitter ( $n=85$ ; 36.50%), Google+ ( $n=32$ ; 13.73%), Tumblr ( $n=15$ ; 6.43%), LinkedIn ( $n=11$ ; 4.72%), MySpace ( $n=4$ ; 1.72%), Bebo ( $n=3$ ; 1.29%), TheStudentRoom forums ( $n=2$ ; 0.86%) or another social network site ( $n=8$ ; 3.43%).

Students were eligible to take the questionnaire within the five weeks of starting university. A five-week period was considered reasonable because the positioning of college results day in the academic year means that most students are accepted to a UK university within five weeks of starting the university. In the final sample, all students completed the questionnaire less than one ( $n=31$ ; 13.30%), two ( $n=29$ ; 12.45%), three ( $n=112$ ; 48.07%), four ( $n=27$ ; 11.59%) or five weeks ( $n=34$ ; 14.59%) prior to starting university. Eight students were

previously excluded for completing the questionnaire more than five weeks prior to starting a new university.

### Power analysis

The researcher conducted a-priori power analyses to ascertain the minimum sample size required to detect the statistical relationships being explored in the study (Cohen, 1992). Two separate power analyses were conducted to match the two types of structural equation modelling used in the study: model fit analysis (Research question 1; for formulae, see: MacCallum, Browne & Sugawara, 1996; MacCallum, Lee & Browne, 2010) and path analysis (research questions 2 and 3; see: Cohen, 1988; Westland, 2010).). The level of statistical power for each power analysis was set at  $\pi=.80$ . Setting the level of statistical power to 0.80 avoided the possibility of incorrectly accepting the presence of a statistical relationship (a Type I error) which was considered more problematic than incorrectly rejecting the presence of a statistical relationship (a Type II error).

Power analysis indicated that a minimum of 99 students was required to conduct the model fit analysis planned for Research question 1. As a reminder, Research question 1 assessed the types of strategies that students used on social network sites when getting to know the general types of people at their university in the weeks prior to starting university. When conducting the power analysis, the researcher assumed that roughly four strategies would provide an adequate description of how students got to know each other on social network sites. An adequate description was deemed to be the RMSEA value for the model being lower than a cut-off point of .05 identified as a stringent and acceptable cut-off point by Browne and Cudeck (1993). The researcher considered four strategies to

be reasonable based on research by Berger (1979) and Ramirez, Walther, Burgoon and Sunnafrank (2002) who identified that people tend to use up to four strategies when getting to know a specific individual. Those strategies were the passive, interactive, active and extractive strategies described in the Introduction to this chapter and in more depth in the literature review in Chapter 2.

Power analysis indicated that a minimum of 204 students were required to detect a small effect size (0.25) when using path analysis to answer research questions 2 and 3. Those research questions explored the relationship between the strategies that students try to use to find out about each other on social network sites and how confident those students were about their impressions (Research question 2) and the intensity of those students' worries about university (Research question 3). A small effect size (0.25) was expected based on the wide range of factors that might theoretically influence impression formation (e.g. Douglas, 1994; Ramirez, Walther, Burgoon & Sunnafrank, 2002; Stefanone, Hurley & Yang, 2013; see the literature review in Chapter 2 for a summary of the factors that influence impression formation).

The minimum sample size was met for both the model fit ( $n=99$ ) and path analysis ( $n=204$ ) research questions. Consequently, the sample size in this study was appropriate for detecting the statistical relationships that exist and rejecting those that do not.

### *Sampling procedure*

Students were recruited through advertisements placed on the Internet for five weeks between August and September 2011, which is the period that most



students are accepted to and begin attending a university in the United Kingdom (UCAS, 2015).

Three different recruitment methods were used. First, various UK universities and students' unions placed links to the study on their websites or social network site presences (e.g. Facebook page, Twitter feeds). Second, two advertisement agencies were also commissioned to place advertisements on websites that were relatively popular amongst students. Those advertising agencies were Facebook Ads and Google AdWords. Finally, snowball sampling was used insofar that students were encouraged to share links to the study with their friends via a social network site (e.g. Baltar & Brunet, 2012). Most students were recruited through their universities and students' unions ( $n=183$ ) with significantly fewer recruited through snowball sampling (47) and advertising agencies (3).

There were four criteria for including a student participant in the study: (i) students should not previously have taken a degree or course at their new university, (ii) students should be starting an undergraduate degree, (iii) students should be completing the questionnaire less than five weeks prior to starting at university, and (iv) for ethical reasons, students should be older than 16 years of age. The impact of the age restriction was considered negligible given that few university students are aged less than 16 years, with the majority being aged 17 and 18 years of age (Higher Education Statistics Agency, 2015).

### *Materials*

Students completed demographic, worries, and trait-state anxiety questionnaires. Students also completed a questionnaire about the different encounters on social

network sites that they had when getting to know a group of people at their new university, and a separate questionnaire examining how confident the students were in their impressions of that general group.

#### Demographics (Appendix F)

Students provided general demographic information including age, sex, country of origin, university to be attended, name and type of their course/degree, and approximate date of arrival at university.

#### Trait anxiety (Appendix G)

Trait anxiety was measured to control for the theoretical impact of anxiety on worries (Belzer, D’Zurilla & Mayedu-Olivares, 2002; Reidy, 2004). A Trait Anxiety inventory (STICSA; Ree, French, MacLeod & Locke, 2008) asked students to rate the extent that 21 somatic and cognitive indicators of anxiety applied to them on a general day-to-day basis. Responses were made on a four-point scale from zero (not at all) to three (all the time).

The STICSA was selected because other trait anxiety measures, such as the STAI-T (Spielberger & Sydeman, 1994) conflate anxiety with stress and personality (Bados, Gómez-Benito & Balaguer, 2010; Cox, Cohen, Direnfeld & Swinson, 1996; Endler, Cox, Parker & Bagby, 1992). The STICSA offers good discriminant validity, convergent validity and internal reliability (Elwood, Wolitzky-Taylor & Olatunji, 2012; Grös, Antony, Simms & McCabe, 2007) and the measure has been successfully administered online and using a computer (Durlak, Brown & Tsakiris, 2014; Grös, Simms & Antony, 2010; Stinson & Bowman, 2014).

In this study, the STICSA had high internal consistency (Cronbach’s  $\alpha$

for cognitive subscale  $\alpha=.88$ ; somatic subscale  $\alpha=.87$ ; overall scale  $\alpha=.91$ ) which matches the high internal consistency demonstrated in other studies (e.g. Grös, Antony, Simms & McCabe, 2007; Grös, Simms & Antony, 2010; Ree, French, MacLeod & Locke, 2008).

#### Intensity of student worries about university (Appendix H)

The New College Students' Concerns Survey (NCSCS; Brooks, 2005) asked students to rate the extent they were worried about 25 aspects of starting university. The aspects were rated on a five-point scale from zero (not at all concerned) to four (extremely concerned). The NCSCS divided the students' worries into three subscales: social, academic and psychological worries (Appendix H).

The NCSCS was chosen because the inventory measured student worries *prior* to arriving at university. Most student worries questionnaires examine students' worries only *after* having arrived at university (e.g. Osman, Gutierrez, Downs, Kopper, Barrios & Haraburda, 2001). Furthermore, the NCSCS was selected because previous research demonstrated good internal consistency and predictive validity (Mattanah, Ayers, Brand & Brooks, 2010).

The NCSCS required some amendment by the researcher because the scale was developed and validated for a US university population. Some items were reworded to ensure relevance to a UK university population. The word "roommates" was replaced with "housemates" because, unlike American universities, students in UK university accommodation tend to live in single bedrooms within a house or flat rather than sharing a bedroom.

A content analysis and separate principal components analysis identified that the worries described in the NCSCS matched the worries of students due to attend a UK university. The match was important to assess given that no previous study had explicitly examined whether the worries of UK students matched those included in the US-centric NCSCS. To compare the worries of the NCSCS with the worries of students attending a UK university, students were asked to list up to five of their worries about university prior to completing the NCSCS (Appendix I).

After data collection was completed, the students' worries were summarised using content analysis. Content analysis is a method of describing a phenomenon by summarising a larger set of responses about that phenomenon into a condensed, organised set of semantically-grouped content categories (Elo & Kyngäs, 2008). First, the researcher read through participants' responses for familiarisation and to develop an appreciation of the worries that students described (Hsieh & Shannon, 2005). The researcher then traversed the list a second time to assign each response an initial code reflecting the semantic nature of the worry (Vaismoradi, Turunen & Bondas, 2013).

An inductive, emergent coding approach was adopted whereby the initial codes were derived from students' responses as opposed to predefining responses prior to coding (Joffe & Yardley, 2004). An inductive approach was used to ensure that the coding of worries was reflective of students attending a UK university rather than applying a-priori set of worries about university derived from students studying in other countries that may not be appropriate due to differences in the university systems. A single code was assigned to each response because there were few instances where more than one code was

suitable. Participants were asked to write a single worry per response and most responses were of a short length and comprised of only a single word. As the initial coding progressed, similarities between codes emerged and consistent labels were used to describe codes expressing the same worry (Hsieh & Shannon, 2005).

After initially coding participants' responses, the researcher traversed the students' responses a third time to determine if any codes required relabelling given that researcher's conceptualisation of a worry might have changed during coding process (Hsieh & Shannon, 2005). Once codes were finalised, the codes were grouped together based on worries described by those codes being semantically similar (Bogdan & Taylor, 1975). Groups of codes that were semantically similar were labelled per the nature of their similarity and are hereafter referred to as categories (Joffe & Yardley, 2004). Categories were defined iteratively, with the scope of each category broadening as more codes were added (Vaismoradi, Turunen & Bondas, 2013). When the scope of each category became too broad, the category was split into multiple categories that more appropriately accounted for the constituent codes (Elo & Kyngäs, 2008). Labels for each category were amended if necessary. Inclusion and exclusion criterion were developed to help define and differentiate codes. After codes were organised into categories, the researcher traversed a list of codes and categories to consider whether any codes required realignment or any categories required further splitting, combination or relabelling (Braun & Clarke, 2013). A codebook for the final set of categories and codes is provided in Appendix J. Frequency counts were calculated based on the number of participant responses that were assigned to each code and category (Appendix K).

Most students (statements  $n=338$ ; 32.2%) were concerned about their new social lives including meeting, liking and being liked by their housemates and coursemates (Appendix K). Other prominent worries included limited money ( $n=144$ ; 13.72%), the ability to tackle the course ( $n=269$ ; 25.63%), and leaving existing friends ( $n=109$ ; 10.38%), concerns over physical and emotional health ( $n=91$ ; 8.69%), and the pragmatics of university life such as cooking, laundry and university administration ( $n=99$ ; 9.45%). Each of the worries that students described were also present in the NCSCS except for language barriers ( $n=18$ ; 1.71%), concern over being too old or too young ( $n=8$ ; 0.76%) or securing an immigration VISA ( $n=3$ ; 0.29%). However, those missing worries were very rare (<3% of students). Consequently, the NCSCS was considered to have good content validity when applied to a UK population given that the worries in the scale broadly matched those generated by students themselves.

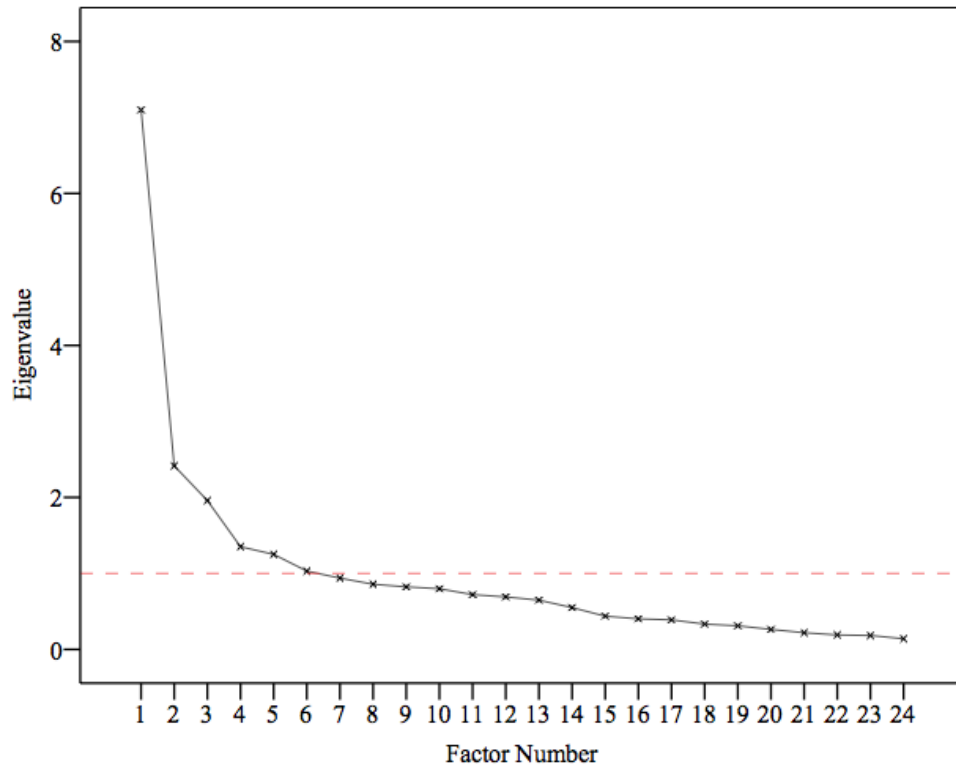
The structural validity of the NCSCS was demonstrated by conducting a Principal Components Analysis using an oblique rotation. An oblique rotation method was chosen because the method allows for correlations between different types of worries whereas orthogonal rotation methods such as varimax rotation would assume no correlation (Gorsuch, 1983; 1990; Tabachnick & Fidell, 2007; Thurstone, 1935; 1947). Moderate correlations were expected between worries because there may be overlaps and links between different types of worries that students experience in the weeks prior to starting university. For example, a student who is worried about failing his course may in turn worry about his ability to successfully integrate with the people on his course should he be unable to engage with fast-paced conversation about complex concepts being studied. Similarly, a student who is worried about being able to financially support her

learning may also worry about her ability to afford the books that will help her succeed academically on her course as well as the prohibitive cost of engaging in social activities with housemates and coursemates.

The direct oblimin method of oblique rotation was selected because the resulting models can be more clearly interpreted compared to alternative methods of oblique rotation. Direct oblimin rotation accentuates moderate to strong loadings of worries onto a factor and understates weak loadings of those same worries onto other factors (Harman, 1976). Weak loadings were expected given that many of the specific worries overlapped or were linked to each other, as discussed in the preceding paragraph. The result of accentuating strong loadings is that the derived structure would be simpler and easier to interpret than alternative methods such as promax rotation. The interpretation would be simpler and easier because a model using direct oblimin draws out worries with the strongest loadings whilst still allowing for the worries to correlate without dramatically affecting the interpretation (Jennrich & Sampson, 1966). Promax rotation was rejected because early stages of the rotation method rely on orthogonal rotation which is associated with the aforementioned, unrealistic assumption that different types of worries are uncorrelated (Harman, 1976). As recommended by Kaiser (1958) the direct oblimin rotation, was calculated with a Kaiser normalisation to avoid some specific worries becoming disproportionately influential in the final solution compared to others.

The automated Principal Components Analysis initially divided students' worries into six types as indicated by the screeplot in Figure 1 and in Table 1. Additional factors were rejected because those factors had eigenvalues that were

less than Kaiser's (1960) cut-off of 1.00 indicating that the factors contributed little explanatory value to the model.



*Figure 1:* Screeplot of students' worries from Brooks' (2005) New College Students' Concerns Survey.



Table 1

*Rotated factor loadings for principal components analysis of Brooks' (2005) New College Students' Concerns Survey.*

	Type of worries					
	New relationships	Existing relationship	Time management	Academic ability	Mental health	Physical health
Eigenvalue	7.10	2.42	1.96	1.35	1.25	1.03
Total variance explained (%)	29.58	10.06	8.16	5.63	5.21	4.29
Cronbach's $\alpha$ reliability	0.82	0.70	0.77	0.80	0.63	N/A*
Worry item						
1. I will not have enough money to pay for my education	0.10	0.22	0.19	0.01	-0.14	-0.06

2. I will not be able manage my time for studying	0.23	-0.25	<b>-0.47</b>	0.02	0.40	-0.04
3. I will have difficulty making friends	<b>0.72</b>	<b>-0.40</b>	<b>-0.31</b>	-0.17	0.06	-0.04
4. I will have difficulty in relationships	<b>0.62</b>	-0.25	-0.22	-0.02	0.15	0.05
5. I will not be smart enough	0.27	-0.09	<b>-0.38</b>	<b>-0.43</b>	-0.28	0.12
6. I will become homesick	<b>0.44</b>	<b>0.60</b>	-0.11	<b>-0.37</b>	0.29	-0.11
7. I will not feel safe where I am living	0.13	0.29	-0.10	-0.02	<b>0.35</b>	0.04
8. I will not do well in my classes	<b>0.67</b>	-0.13	-0.20	<b>-0.34</b>	-0.21	0.15
9. I will not get enough sleep	0.21	0.22	0.18	0.03	0.01	0.07
10. I worry I did not pick the right university	0.14	0.12	<b>-0.32</b>	0.15	-0.18	0.15
11. I am worried that I might abuse alcohol	0.23	0.08	-0.07	0.14	0.21	<b>0.44</b>
13. I will have a hard time fitting in socially	<b>0.72</b>	<b>-0.38</b>	-0.29	-0.03	0.10	-0.17
14. I will have trouble getting along with my housemates	<b>0.56</b>	-0.22	-0.23	-0.03	0.05	0.18
15. I will feel inferior to others	<b>0.64</b>	-0.13	-0.11	-0.08	-0.11	-0.04
16. I will have a hard time leaving my family behind	<b>0.36</b>	<b>0.64</b>	-0.19	-0.26	0.21	-0.07

17. I will have a hard time keeping up with all of my academic work	0.27	-0.11	<b>-0.57</b>	-0.02	0.19	0.08
18. I will have a hard time leaving my friends behind	0.26	<b>0.51</b>	-0.06	0.01	0.08	0.25
19. It will be hard for me to find a new peer group that I can connect with	<b>0.78</b>	-0.14	-0.17	0.06	-0.01	0.04
20. I will have a hard time eating properly	0.26	0.28	-0.02	0.16	-0.02	<b>0.42</b>
21. I will become lonely	<b>0.75</b>	0.04	-0.22	0.18	-0.13	-0.05
22. I will have difficulty balancing studying and extracurricular activities	0.26	-0.07	<b>-0.43</b>	0.14	0.20	0.01
23. I will have trouble managing university-related stress	0.11	0.19	0.31	0.26	<b>-0.65</b>	-0.27
24. I will have difficulty balancing work and studying	<b>0.33</b>	0.10	<b>0.45</b>	0.17	0.09	-0.07
25. I will become sad or depressed	0.26	<b>0.30</b>	-0.10	0.22	<b>-0.60</b>	-0.26

Note: Item 12 was removed due to excessive missing data. For justification, see the Missing data subsection in the Results section of this chapter. Bolding indicates that the indicated worry was strongly loaded onto the given factor.

\* Cronbach's  $\alpha$  was not calculated for the Physical health factor because only one specific worry loaded strongly onto the factor.

The six types of worries were broadly concerned with new social relationships, existing social relationships, academic workload and time management, academic failure, and mental and physical wellbeing. The descriptive labels of those worries were chosen based on the types of worries that loaded onto a factor. Worries were considered to load onto a factor when the loading was stronger than .30 (Watson, Clark, Weber, Assenheimer, Straus & McCormick, 1995) and was more than double the strength of the loading of the worries on another factor (Saucier, 1994). There were some instances where worries crossloaded to more than one factor which was permitted when the factors dealt with similar types of worries. For example, Item 6 involved students being worried that they would feel homesick. The item was permitted to crossload onto two factors; one representing worries about existing social relationships and the other representing worries about new social relationships. The cross-loading was considered appropriate because both factors dealt with social worries.

A crossloading also emerged for students' worries about not managing study time very well (Item 2), which loaded onto two factors representing types of academic and psychological worries about university. Similarly, students' worries about not doing well in classes (Item 8) cross loaded onto factors representing types of academic and social worries about university. Cross-loadings of that type were not permitted because the academic, social and psychological worries should be distinct from each other in the scale. Based on the advice of Saucier (1994), those two items were removed from further analysis because the items could not be used to distinguish between factors.

The six types of worry identified in the factor analysis aligned to the social, academic, and psychological worries that the NCSCS purported to

measure. In the NCSCS, students' social worries about university consisted of worries about new social relationships and existing social relationships that were also identified in the factor analysis. Similarly, students' academic worries about university consisted of worries about academic workload and academic failure that were also identified in the factor analysis, and students' psychological worries consisted of worries about mental wellbeing and physical wellbeing.

Despite the automated analysis extracting three broad types of worries, only the social and academic worries were sufficient for use in the study. The psychological worries were dropped from further use based on two criteria. First, the scree plot indicated a severe drop off at the fifth and sixth factors which were the two factors referring to students' psychological worries (Figure 1). A severe drop off on the scree plot is a common criterion for determining the dismissal of factors in exploratory factor analysis, indicating that the factors beyond the drop-off do not significant benefit the description of the data and therefore can be removed (Fabrigar, Wegener, MacCallum & Strahan, 1999). Second, the Cronbach's  $\alpha$  score for psychological worries ( $\alpha=.65$ ) was below Nunnally's (1978) minimum cut-off of  $\alpha=.70$  unlike for social ( $\alpha=.83$ ) or academic worries ( $\alpha=.80$ ).

Overall, evidence from content and principal component analyses indicated that the US-centric NCSCS worries questionnaire was appropriate for the types of worries that a UK students experience in the weeks prior to starting university. However, only the academic and social scales from the NCSCS were used in subsequent analysis because the subscale measuring psychological worries was neither coherent nor appreciably helped the description of those worries.

The NCSCS' predictive validity was demonstrated with a statistical relationship that would be expected if the NCSCS were a good measure of student worries. Specifically, trait anxiety predicted social and academic worries (social worries:  $B=.512$ ,  $S.E.=.652$ ,  $p<.001$ ; academic worries:  $B=.349$ ,  $S.E.=.652$ ,  $p<.001$ ).

#### Groups that students encountered prior to starting university (Appendix L)

A questionnaire asked students whether they had “found, viewed or interacted with others” from their university using a social network site. If answering yes, students were asked to indicate which groups and the approximate number of people from that group that they had found, viewed or interacted with. Students chose from a list of common groups including their housemates, coursemates, sportsmates and lecturers. Those groups were identified from the groups discussed by students in the focus groups in Chapter 3 and previous research (Alemán & Wartman, 2008; Madge, Meek, Wellens & Hooley, 2009). Students could also add any other unlisted groups that. Most students ( $n=226$ ; 97%) indicated that they had found, viewed or interacted with others from their university using social network sites in the weeks prior to starting university.

#### Encounters with others on social network sites (Appendix M)

Students were asked to indicate the extent to which they had seventeen encounters when getting to know others from their university using any social network site (Table 2). Students rated the frequency of the encounters on a six-point scale (0=never; 5=all the time).

The list of encounters that students rated was developed for the current study in absence of appropriate alternatives. There was only one existing

inventory of encounters on social network sites, which was developed by Antheunis, Valkenburg and Peter (2010). Antheunis et al.'s inventory was designed for the Hyves social network sites which did not achieve high market penetration in the UK and was not used by any of the students recruited for this study. Instead, most Hyves users were based in the Netherlands (Hofstra, Corten & van Tubergen, 2016). Hyves remained available for registration at the time of data collection during the current study in August and September 2011 although the number of users was rapidly declining whilst Facebook and Twitter were continuing to expand. Hyves was closed in 2013 (Hofstra, Corten & van Tubergen, 2016) .

Antheunis et al.'s inventory failed to provide a comprehensive account of encounters that people have on modern social network sites. Antheunis et al.'s inventory made no mention of groups areas such as Facebook Groups where people can share content. The inventory was considered incomplete and insufficient for the current study which sought to provide a more comprehensive account of the encounters that people have with others on social network sites. The initial pool of encounters for the scale used in the current study is provided in Table 2.

Table 2

*Information-seeking encounters*

Encounter
1. Read messages that they posted in an area that anybody else can see (i.e. in a group, event, hashtag)
2. Looked at their profile pictures or buddy pictures
3. Looked at their tagged photos
4. Read comments that they have written on their photos
5. Looked at content that they have shared on their own profile page or account (i.e. status updates, wall posts, shared links)
6. Looked at their listed preferences (e.g. their likes/dislikes, hobbies, activities, About me/them sections)
7. Looked at a list of your mutual friends
8. Looked at public messages or other content that their friends have sent or written about them
9. Sent a message to one of their friends asking about them (only online)
10. Identified mutual friends online, then asked your mutual friends about them offline (i.e. face-to-face, phone)
11. Asked them questions about themselves in an area where other people can see what you've asked (i.e. in a group, event, hashtag)
12. Asked them questions about themselves in a private area (i.e. private/direct message or private chat)
13. Told them things about yourself first, and they replied by telling you things about themselves
14. Searched for information about them using the social network site's search



(i.e. internal search that only includes results from that site itself)

15. Searched for information about them using a general social engine (i.e. Google; Bing; Yahoo)
  16. Searched for and read messages/content that they have posted on a different social network
  17. Arranged to meet face-to-face or call each other before university starts
- 

When wording the encounters, attention was paid to ensure that the scale would be applicable across a wide range of social network sites rather than a specific brand (e.g. only Facebook). The terms used to describe encounters avoided proprietary terminology that was specific to a single social network. For instance, profile images were described using the synonymous terms from multiple social network sites including ‘profile pictures’ which was a term associated with Facebook (Zhao, Grasmuck & Martin, 2008) and ‘buddy images’ which was a term associated with MySpace.com (Rosen, 2007).

The aim of making a general scale rather than a scale specific to a particular social network site was to recognise that different cultures tend to use different social network sites (Kim, Sohn & Choi, 2011; Saw, Abbott, Donaghey & McDonald, 2013), that people often have access to a portfolio of social network sites (Duggan & Smith, 2013), and that social network sites have different functionality to each other (boyd & Ellison, 2007). In Chapter 3, most students in each focus group discussed using Facebook in the weeks prior to starting university. However, some students also discussed using other social network sites including Twitter and YouGo. YouGo was a social network site designed specifically for students applying to university. By designing a scale

that could be applied to more than one social network site, this study could account for multiple social network sites including those that may be more dominant than Facebook in the future.

Per Streiner, Norman and Cairney (2008), the content validity of the scale was assessed by discussing the scale with a user group and an expert group. Each encounter from the initial pool (Table 2) was discussed with the students that took part in the focus groups in Chapter 3 and expert researchers of social network sites and impression management.

Three expert researchers and three students were emailed a copy of the scale including the wording of each encounter and a description of the proposed purpose of the scale to assess the encounters that students had on a social network site during the weeks prior to starting university. Recipients were asked to consider if they thought that any of the encounters listed in the scale were redundant, were missing, or would warrant modified wording. If the experts or students disagreed with the inclusion of an encounter in the inventory then they were asked to provide a brief explanation outlining their concerns. Feedback from expert researchers and participants was collected through informal face-to-face or email discussions.

The expert researchers consisted of three academics who were identified from within the local academic community, were known to the researcher, and had at least Masters-level expertise in the field of identity construction and impression formation in online environments including social network sites. Each of the three researchers had published their research in peer-reviewed academic journals, and were trained in the fields of psychology, sociology or management studies.

Feedback from the user group suggested the removal of Encounters 15 and 16. Encounter 15 referred to encounters whereby students “searched for information about them using a general social engine (i.e. Google; Bing; Yahoo)”. Encounter 16 referred to encounters whereby “students searched for and read messages/content that they have posted on a different social network”. Users suggested that the encounters did not reflect their experiences in the weeks prior to starting university, which matched there being no encounters of that type mentioned during the focus groups in Chapter 3. Despite the feedback, the two encounters remained in the inventory based on previous research which indicates that online daters use search engines and other social network sites to get to know people that they have met on dating websites. Gibbs, Ellison and Lai (2011) reported that online daters used search engines to verify identity claims that their potential romantic partners made about themselves using the dating websites. For instance, online daters might search for the company website of the person who they were planning on having a date with to verify the claim that they worked for the company.

Encounters 15 and 16 were retained despite differences between social network sites and dating websites insofar that users of the former can verify identity claims made by profile owners by viewing the content posted by the friends and family of that profile owner (Antheunis & Schouten, 2011; Hong, Tandoc, Kim, Kim & Wise, 2012; Walther, Van Der Heide, Hamel & Shulman, 2009; Walther, Van Der Heide, Kim, Westerman & Tong, 2008). The content posted by friends and family is internal to social network sites rather than requiring users to visit external sources as is the case with Gibbs, Ellison and Lai’s (2011) study of dating websites. However, the ability for users of social

network sites to view the content shared about a profile owner by friends and family tends to be contingent on having established a friendship connection with the profile owner (Marder, Joinson & Shankar, 2012; Marwick, 2014; Stutzman & Kramer-Duffield, 2010; Vitak, Blasiola, Patil & Litt, 2015). As students were unlikely to have previously met each other in the weeks prior to starting university, they may not have established friendship connections on the social network site and feasibly could have instead had to rely on alternative approaches to verify identity claims of which using external websites and search engines was an option.

One expert researcher requested clarification on the benefit offered by Encounter 13 which involves users having “told them things about yourself first, and they replied by telling you things about themselves”. The expert researcher was satisfied by the explanation that the encounter was warranted based on the research literature concerning reciprocal self-disclosure. Reciprocal self-disclosure is the act of an individual telling another person details, often intimate, about themselves with the view that the other person will in turn reciprocate with similar information through either comfort or a sense of obligation (Berger & Kellerman, 1994; Gouldner, 1960). Reciprocal self-disclosure is commonly and successfully used to elicit information from others whilst face-to-face (Berger & Kellerman, 1983; Jourard, 1971; Sermat & Smyth, 1973; Worthy, Gary & Kahn, 1969), in video conferencing (Sprecher, Treger, Wondra, Hilaire & Wallpe 2013) and in online environments including chatrooms, forums, dating websites and social network sites (Attrill & Jalil, 2011; Barak & Gluck-Ofri, 2007; Gibbs, Ellison & Heino, 2006; Joinson, 2001; Park, Jin & Jin, 2011; Whitty, 2008).

Expert researchers and members of the student user group suggested the removal of Encounter 17 for including a direct encounter between students that was not available on a social network site. The encounter involved students who “arranged to meet face-to-face or call each other before university starts”. The encounter was originally included to recognise that students could contact their new housemates and coursemates offline and that could disrupt impression formation formed from online encounters. Expert researchers highlighted that, if retained, the encounter would require modification to be more representative of the options that students could have used to meet outside of a social network site (e.g. text messaging, email, video conferencing). However, the encounter was entirely removed because a comprehensive consideration of offline encounters was considered beyond the scope of the study.

Other than the comments noted and resolved in the preceding paragraphs, neither the user or expert groups reported major concerns about the wording of the encounters therefore the remaining sixteen encounters were administered to students in the final version of the current study.

To ensure coverage of missing encounters not identified by the expert and user groups, students could list and rate encounters missing from the scale. To identify items that were inappropriate or unnecessary, students could also indicate that an encounter was not possible using any of the social network sites that they used. Relatively few used these options, however, which suggested that the content validity of the questionnaire was acceptable. The structural and predictive validity of the scale are reported in the Results section.

#### Students' confidence in their impressions (Appendix N)

Students completed the Clatterbuck (1979) Uncertainty Evaluation Scale which

assessed how confident they were in their impressions about a group of people (CLUES7).

The seven-item scale asked students to indicate the extent to which they felt accurate predicting the behaviour, thoughts, and feelings of the general types of people that they will encounter at university. The social certainty measure was considered an appropriate proxy for how confident students were in their impressions about a group. Responses were made on an eleven-point scale from zero (not at all/a total guess) to ten (completely certain). Higher scores were associated with greater certainty/confidence.

CLUES7 has been used in most studies exploring how people get to know each other during the early stages of a relationship allowing the current study to be more directly compared to earlier research (e.g. Antheunis, Valkenburg & Peter, 2010, Douglas, 1987). The scale has also demonstrated good convergent and discriminant validity (Clatterbuck, 1979; Gudykunst, Yang & Nishida, 1985).

The original CLUES7 asked participants to rate their accuracy in predicting the behaviour and thoughts about a *specific individual*, whereas the current study focused on participants rating the accuracy in predicting behaviour and thoughts about a *group of people*. Consequently, confirmatory and exploratory factor analyses assessed the structural validity of the scale for a group of people. Both confirmatory and exploratory factor analyses indicated good structural validity given that each of the items on CLUES7 loaded onto the same single factor. An exploratory factor analysis with varimax rotation indicated that all items on the CLUES7 loaded onto the same single factor with a very high loading ( $>.60$ ) that exceeded the minimum loading of  $.30$ . The

confirmatory factor analysis indicated that a single factor with all the CLUES7 provided a good fit to the data as indicated by the RMSEA value for the model being lower than a cut-off point of .05 (Browne & Cudeck, 1993,  $\chi^2_{(14)}=584.04$ ,  $p<.001$ ;  $RMSEA=0.03$ , 95%  $CI$ : 0.03 to 0.04;  $CFI=0.96$ ). The scale demonstrated high reliability (Cronbach's  $\alpha=.88$ ) which was consistent with previous research ( $\alpha=.76$  to .97; Graham, 1993; Wheelless & Williamson, 1992).

### *Procedure*

After agreeing to an informed consent form (Appendix O), all students completed the demographic, the trait anxiety, and two worries questionnaires. The students were asked to list their worries before completing the NCSCS to avoid priming students with worries that they had not previously considered.

Students were asked if they had used social network sites to “meet, view or find out more about people at their university”. If students indicated that they had encountered others at their university, then they were asked to complete a scale rating the frequency of encounters and how confident they were in their impressions of others. When completing the scales on encounters and impressions, participants were directed to focus on a broad group of people using the wording “think generally about all the types of people that you are likely to meet at university, rather than a specific person or group”. The scale defined the target group for the students by asking them to: “Think generally about all the types of people that you are likely to meet at university, rather than a specific person or group.” Students were asked to focus on that very broad group of people rather than a more specific group of housemates or coursemates because the study was an early, exploratory study seeking to understand general trends

rather than trends that may be specific to a certain affiliation relationship (e.g. to housemates or coursemates). Focusing on nuances specific to a particular affiliation could have masked broad statistical relationships that are common across affiliations.

Students were then debriefed about the study's aims and background, and asked to share the study with friends (Appendix P). Students were offered advice on pastoral support for any worries about university.

## **Results**

### *Missing data strategy*

The dataset was examined for missing data that had arisen from students omitting to answer any question in the questionnaire either intentionally or unintentionally. Missing data was considered to avoid over-biasing the conclusions derived from the statistical analysis (Carpenter & Kenward, 2014; Graham, 2009).

One student (Participant 72) was excluded from the study after failing to complete over fifty percent of the trait anxiety questionnaire. Two further students (Participants 46 and 130) were removed for failing to complete over fifty percent of the Clatterbuck (1979) social uncertainty questionnaire.

Item 12 was removed from Brooks' (2005) university worries questionnaire because a large proportion (22.74%;  $n=53$ ) of students' responses were missing, rendering the item unusable. The item read: "I will have difficulty finding a major I like". The item was deemed irrelevant to students studying in the UK who pick a single degree prior to starting university unlike students



studying in the United States, for whom the scale was originally designed, who choose their degree specialism after arriving at university,

The proportion of students who had omitted data for the remaining items was considerably smaller, with less than fifteen percent having any missing data (13.73%;  $n=32$ ). Of those students with missing data, the magnitude of their missing data was small with most students having omitted one ( $n=22$ ), two ( $n=3$ ) or three items ( $n=4$ ) across the entire study. The remaining three students with missing data had omitted four ( $n=1$ ), five ( $n=1$ ) and six items ( $n=1$ ) respectively.

Given the small proportion of students with large numbers of missing items, a missing data technique known as Weighted Least Squares Mean and Variance adjusted estimation (WLSMV) estimation was used to calculate the structural equation models considered later in the Results section. WLSMV was chosen because most measures used in this study asked students to respond using Likert-style responses. When using ordered-categorical data, such as the Likert-style responses used in this study, statistical estimation using the WLSMV method is considerably more accurate than the common alternatives such as Maximum Likelihood estimation particularly when measures are not normally distributed (Beauducel & Herzberg, 2006; Finney & DiStefano, 2006). The issue of a normal distribution was particularly pertinent in the current study. Each of the encounters that students used when trying to get to know the general type of people at their university from social network sites was not normally distributed.

WLSMV was conducted in the MPlus statistical software (Muthén & Muthén, 2012). Mplus permitted WLSMV and maximum likelihood estimation when bootstrapping the confirmatory factor and path analysis techniques used in the current study (Narayanan, 2012). At the time of analysis, IBM SPSS and

AMOS did not permit bootstrapping when using WLSMV estimation to deal with missing data.

Dealing with missing data using WLSMV estimation was considered to have had a negligible, acceptable impact on the study's validity because i) very few items were missing for any one student; and ii) the measures in the study consisted of several items meaning that the impact of any one missing item on an overall measure (and, subsequently, the overall study) would be minor once collated alongside other items in that measure. An alternative approach to missing data, known as pairwise deletion was considered inappropriate when compared to WLSMV estimation. Pairwise deletion involves excluding any participant with missing data (Carpenter & Kenward, 2014). Excluding participants would have adversely influenced the extent to which the sample represented the wider student population because up to 15% of students in the study would have been excluded from analysis many of whom would have had only one or two items of missing data. By using WLSMV estimation, most of the sample was maintained with negligible impact on subsequent statistical analysis.

An alternative data substitution technique, known as multiple imputation (Rubin, 1978; 1996), was also considered inappropriate. The effect on multiple imputation on bootstrapping, a technique that was considered essential to this study as shall be explained in the subsequent section, was not well understood or researched at the time of writing. Furthermore, the statistical techniques for combining multiple imputation and bootstrapping had not been included for most mainstream statistical packages. In comparison, the effects of techniques like WLSMV estimation on bootstrapping have been well-researched and are well implemented in statistical software such as MPlus. Researchers have

demonstrated that there is no adverse effect on the results of studies that combine the WLSMV and bootstrapping (Asparouhov & Muthén, 2010; Enders, 2001; McLachlan, 1987).

*Research question 1: What strategies do students use when first getting to know a group of people on social network sites?*

Drawing upon the relative merits of the two statistical procedures, both confirmatory factor and principal components analyses identified the strategies that students used when first getting to know the general type of people at their university on social network sites. The dataset was split into two subsets avoid redundant analysis of the same data. One subset underwent a confirmatory factor analysis and the other subset underwent a principal components analysis (Fabrigar, Wegener, MacCallum & Strahan, 1999; Hinkin, Tracey & Enz, 1997; Pohlmann, 2004).

#### Confirmatory factor analysis

A structural model was created in MPlus that aligned the sixteen social network site encounters to one of the passive, active, interactive and extractive strategies defined in previous research (Berger, 1979; Ramirez, Walther, Burgoon & Sunnafrank, 2002). The encounters aligned to one of the four strategies based on the theoretical descriptions of each strategy outlined in the literature review in Chapter 2 and summarised in the Introduction to this chapter. A visual representation of the model is provided in Figure 2.

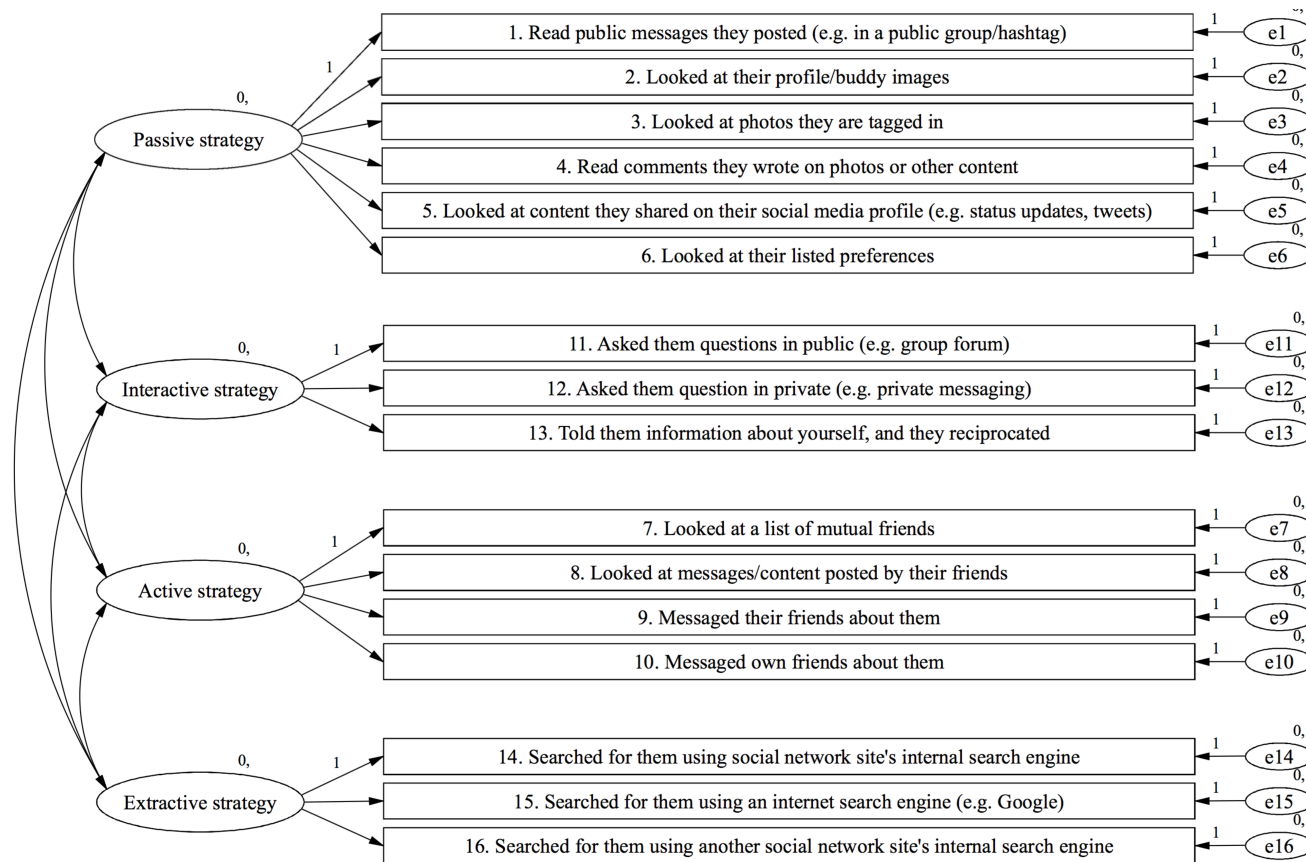


Figure 2: Visual diagram of Model 1, representing the original model suggested by Berger (1979) and Ramirez, Walther, Burgoon and Sunnafrank (2002).

The accuracy of factor loadings and the goodness of fit measures were considered paramount in this analysis because those indices were core to making decisions about accepting or modifying the statistical models that described how students got to know others on social network sites. Given the central importance of the two indices, two techniques were employed to help improve their accuracy given the nature of the sample that had been collected.

First, as discussed in the preceding section, an estimation technique known as Weighted Least Squares Mean and Variance adjusted estimation (WLSMV) was used because most measures used in this study asked students to respond using Likert-style responses and many responses were not normally distributed.

Second, a resampling technique known as bootstrapping produced ten thousand different versions of the confirmatory factor analysis. Bootstrapping involves randomly selecting participants from the original sample, and then conducting the analysis on that randomly selected sample (Efron, 1979). The process is repeated across each of the samples, in this case ten thousand, and then the statistical estimates from each of those samples are combined. Bootstrapping was selected because the technique calculates more accurate factor loadings and goodness of fit measures in confirmatory factor analysis, particularly with sample sizes smaller than 300 (Efron, 1979) and where measures are not normally distributed (Curran, West & Finch, 1996) which were both circumstances present in this study. Bias-corrected bootstrapping was used because Hayes (2013) reported that the technique was most accurate when conducting the type of indirect effects analysis used during analysis of research question 3.

The four strategies provided a moderately well-fitting model of the encounters that students used when getting to know a group of people on social network sites. The moderate fit was demonstrated by several fit indices,  $RMSEA=.08$  (90%  $CI$ : .07-.09,  $p<.001$ ),  $CFI=.92$ . A good, acceptable model fit would have been indicated by the  $RMSEA$  statistic being lower than .05 (Browne & Cudeck, 1993) and the  $CFI$  statistic being greater than .95 (Hu & Bentler, 1999). A poor fit would have been indicated by the  $RMSEA$  statistic being higher than 1.00 (Browne & Cudeck, 1993). Both the  $RMSEA$  and  $CFI$  statistics were chosen to assess the model because the statistics are appropriate for ordered-categorical scales such as those used in the current study (Yu & Muthén, 2002). A statistically significant  $\chi^2$  test ( $\chi^2_{(98)}=235.38$ ,  $p<.001$ ) was ignored because the Chi-square test becomes unreliable when assessing models with sample sizes of larger than 200 participants (Bentler & Bonnett, 1980; Jöreskog & Sörbom, 1993).

Further analysis was required to determine whether the model could benefit from refinement including realigning encounters to different strategies or reconceptualising how those strategies were split (Anderson & Gerbing, 1988). For any modification of a model such as the one in this study, researchers should have a theoretical justification supported by statistical evidence (Stage, 1990).

For exploratory and principal components analyses, identifying whether encounters needed realigning to different strategies would usually be achieved by an inspection of factor loading matrices (Brown, 2015). Unlike exploratory and principal components analyses, confirmatory factor analysis assumes zero crossloading of items between factors therefore no crossloadings were produced for this analysis (Brown, 2015; Joreskog, 1969). It is recognised that the

assumption of zero crossloading can be criticised given that the expectation is often stricter than could be expected by a theoretical understanding of the behaviour being measured (Asparouhov & Muthén, 2009; Vassend & Skrondal, 1997). However, the absence of crossloading did not affect the assessment of whether encounters needed realigning to different strategies or not because assessment of fit could still occur. Unlike exploratory and principal components analyses, confirmatory factor analysis assesses the realignment of encounters to strategies not using crossloadings but instead using a different set of statistical indices known as modification indices (e.g. change in Chi-square; Brown, 2015).

Modifications indices are summary statistics that indicate the impact that realigning any given encounter to another strategy would have on the model fit (Jackson, Gillaspay Jr., & Purc-Stephenson, 2009; MacCallum, 1995). Per Brown (2015), improvement in model fit was measured by the change in Chi-square ( $\Delta\chi^2$ ) between the current model and the model if the encounter was realigned to another strategy. The modification indices indicated changes that might produce a better fit for the model and therefore more appropriately describe the strategies that students used when getting to know a group of people on social network sites (Table 3). As an example, if Encounter 7 (“Looked at a list of mutual friends”) was realigned to the passive strategy then the expected improvement in  $\chi^2$  would be 0.65. Per, Jackson, Gillaspay and Purc-Stephenson (2009), standardised and unstandardised loadings were also provided indicating the likely regression weights between an encounter and strategy if the indicated realignment was enacted. It would be inappropriate to treat modification indices as crossloadings. Modification indices are predicted changes that result from realigning an encounter to a single, different strategy whereas crossloadings are

based on an alignment of an encounter to all strategies concurrently (Brown, 2015).

Per Bagozzi and Yi (1988), only improvements in Chi-square of greater than 3.85 were considered statistically significant at an alpha level of .05 ( $df=2$ ). Changes in Chi-square that were less than 3.85 were ignored due to being unlikely to appreciably impact the fit of the model. In Table 3, the modification indices ( $\Delta\chi^2$ ) for moving the three encounters aligned to the extractive strategy onto the passive strategy was higher than for any of the other possible changes to the model, suggesting that combining the passive and extractive strategies would have made the largest improvement in the model fit statistics and thus how well the model provided a good description of how students got to know each other from social network sites (Expected  $\Delta\chi^2=11.05, 9.07$  and  $4.58$  respectively).



Table 3

*Modification indices for Model 1.*

Encounter	Strategy loading											
	Passive			Active			Interactive			Extractive		
	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$
1. Read public messages they posted				3.19	0.21	0.14	3.08	0.23	0.13	9.57	0.62	0.37
2. Looked at their profile/buddy images				3.43	-0.11	-0.07	2.87	0.39	0.21	4.86	-0.74	-0.44
3. Looked at photo they are tagged in				1.33	-0.15	-0.10	3.45	0.22	0.12	1.01	0.12	0.07
4. Read comments they wrote on photos or other content				1.79	0.17	0.11	2.06	0.35	0.19	1.23	0.15	0.09
5. Looked at content they shared on their social media profile				2.23	0.08	0.06	4.05	0.18	0.10	7.48	0.35	0.21
6. Looked at their listed preferences				1.00	-0.04	-0.02	2.85	0.44	0.25	1.04	0.11	0.07
7. Looked at a list of mutual friends	0.65	0.07	0.01				0.48	0.25	0.13	1.62	0.16	0.09
8. Looked at messages/content posted by their friends	3.03	0.85	0.13				2.68	0.38	0.21	2.58	0.46	0.27
9. Messaged their friends	2.25	1.37	0.21				0.36	0.04	0.02	2.09	0.47	0.28
10. Messaged own friends	0.12	-0.41	-0.06				1.36	0.24	0.13	2.28	-0.41	-0.24

11. Asked them questions in public (e.g. group forum)	3.14	1.68	0.27	2.12	-0.31	-0.21		5.30	0.67	0.40
12. Asked them question in private (e.g. private messaging)	1.64	0.47	0.07	2.38	0.16	0.11		1.60	-0.48	-0.28
13. Told them information about yourself, and they reciprocated	1.07	0.16	0.02	1.35	-0.12	-0.08		1.52	-0.13	-0.08
14. Searched for them using social network site's internal search engine	11.04	1.90	0.30	3.23	-0.49	-0.32	1.73	-0.58	-0.31	
15. Searched for them using an internet search engine (e.g. Google)	9.07	-4.07	-0.65	1.66	-0.53	-0.36	0.74	0.08	0.04	
16. Searched for them using another social network site's internal search engine	4.58	2.45	0.39	1.15	0.06	0.04	3.34	0.80	0.43	

$\Delta\chi^2$  refers to the change in Chi-squares a result of realigning the encounter to the named strategy.

$\Delta B$  and  $\Delta\beta$  refers to the unstandardised and standardised regression weights that would result from realigning the encounter to the named strategy

More important than the statistical evidence, however, was that the proposal for combining the passive and extractive strategies could be theoretically justified. Without a theoretical justification then the proposed modification indicated by the statistical evidence would be ignored to avoid amending the model based on random statistical artefacts and overfitting the model to nuances in the specific sample that may not generalize to other samples (Jackson, Gillaspay Jr., & Purc-Stephenson, 2009; MacCallum, 1995). The theoretical justification for combining the two strategies was based on there being a substantial degree of overlap in how Ramirez et al. (2002) defined the two strategies. Both passive and extractive strategies involve observing a person or the content that they post online without any direct interaction between the observer and the individual posting the content.

The core difference between the passive and extractive strategies is the age of the content that a person accessed during the encounters aligned to those strategies. An extractive strategy tends to involve more historical, archived content posted by or about an individual on webpages which have been retrieved through an Internet search engine (Gibbs, Ellison & Lai, 2011). In contrast, a passive strategy tends to involve more up-to-date content posted by or about an individual much more recently and often in near real-time. The distinction between passive and extractive strategies breaks down somewhat on social network sites where a both historical and more recent content coexist on the same profile page. For example, a user can view recent photographs of a person on their Facebook profile page in addition to photographs from five years previous (boyd, 2007). Given both a theoretical and statistical justification, the passive and extractive strategies were combined into a single passive strategy

alongside separate interactive and active strategies (Model 2, shown in Figure 3). Encounters 15 and 16 were removed given that their modification indices were smaller than Encounter 14 and they did not offer much unique additional improvement in fit. The three-strategy model provided a moderately well-fitting model of the encounters that students use when getting to know a group of people on social network sites  $RMSEA=.09$  (90%  $CI$ : .08 to .10,  $p<.001$ ),  $CFI=.90$ ,  $\chi^2_{(101)}=278.43$ ,  $p<.001$ .

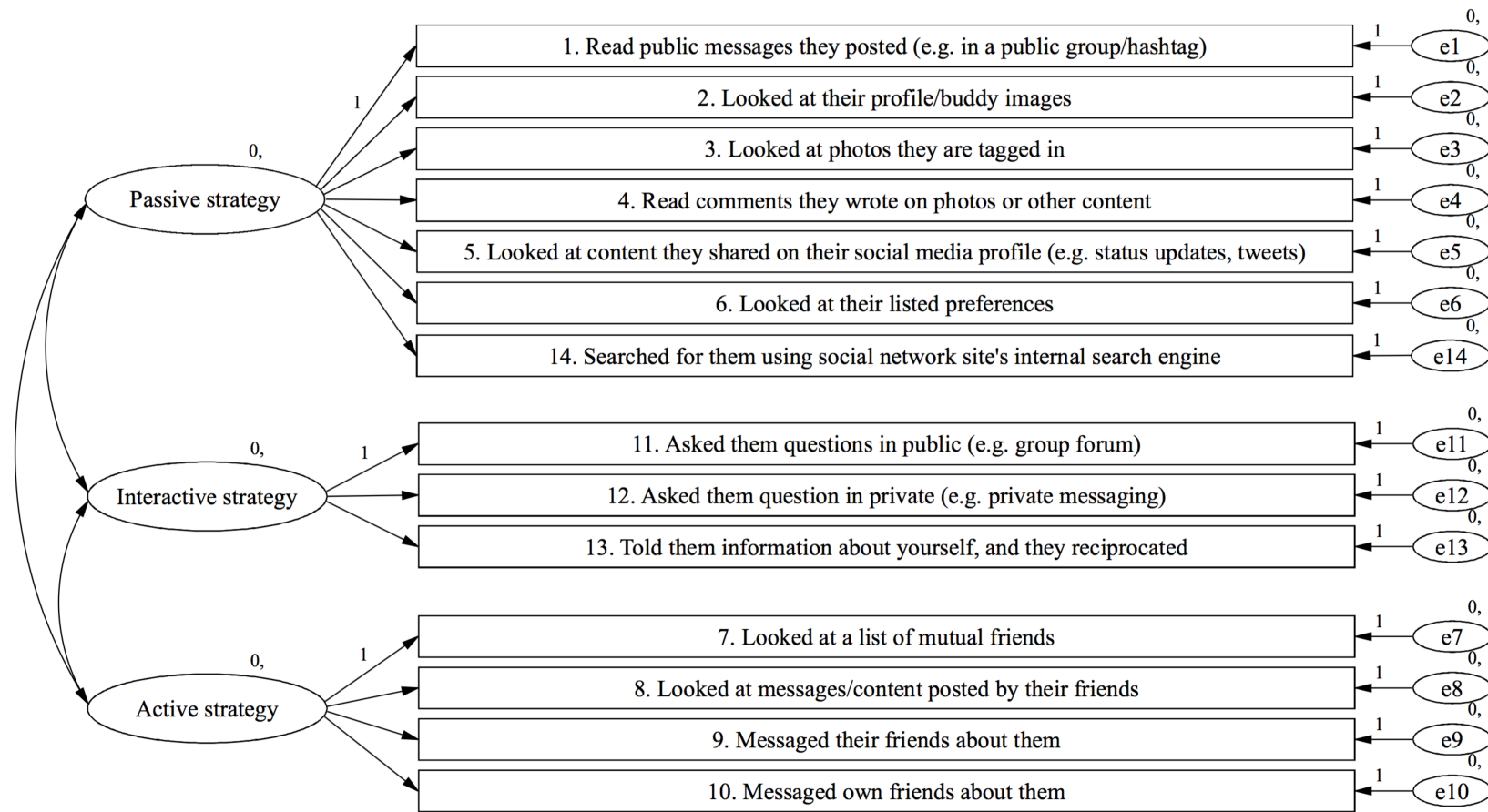


Figure 3: Visual diagram of Model 2 which combined the passive and extractive strategies but retaining all other aspects of Berger's (1979) and Ramirez, Walther, Burgoon and Sunnafrank's (2002) models.

Of greater consequence, however, was that the refined model combining the passive and extractive strategies produced a significantly better fit to the data than the original four-strategy model proposed by Berger (1979) and Ramirez et al. (2002). The better fit was indicated by three statistical metrics. First, the chi-square value for the Model 1 was significantly smaller than the refined Model 2,  $\chi^2_{(14)}=26.00$ ,  $p=.026$ . Various researchers (Merkle, You & Preacher, in prep; Steiger, Shapiro & Browne, 1985) have reported that a Chi-square comparison is an appropriate metric to compare two models when those models are nested versions of each other. Model 1 and Model 2 were nested versions of each other because the first model could be statistically derived from the second model by constraining the correlation between the passive and extractive strategies to 1.0.

Second, the CFI metric for the original model was larger than Model 2 with the difference being greater than .02 (Cheung & Rensvold, 2002). Third, the AIC metric for original model was lower than Model 2 although the research literature has failed to provide a strict cut off point for that metric (Burnham & Anderson, 2002; Hooper, Coughlan & Mullen, 2008;  $\Delta AIC=-31.99$ ). Together, the three statistical metrics provided evidence that Model 2 provided a better fit to Model 1. The metrics indicated that combining the passive and extractive strategies provided a better description of how students get to know a group of people at their university compared to a model that separated the two strategies.

Further examination of the refined Model 2 indicated that there may be some credence to dividing the passive strategy into two separate strategies: a version that only included encounters that accessed content restricted from public view by privacy settings, and a version that only included encounters that access content available to all on a social network sites irrespective of privacy settings.

Statistical evidence supporting a division between encounters involving private and public content emerged from the modification indices and factor loadings for Encounter 1, which indicated that the encounter did not fit well with the rest of the passive strategy. Encounter 1 involved students viewing content that people at their university publically posted on a social network site (e.g. in a group, event, hashtag). The statistical evidence of note was that Encounter 1 explained very low level of variance in the refined model ( $r^2=.03$ ) and weakly loaded onto the passive strategy ( $B=0.16$ ,  $S.E.=0.06$ ,  $p=.010$ ). In addition to Encounter 1 not fitting well with the passive strategy, two other encounters were very highly correlated with Encounter 1 (although still retained moderately strong loadings to the passive strategy). The two encounters involved students viewing profile images of the people at their university (Encounter 2; Pearson's  $r=.80$ ,  $p<.001$ ), and students searching for people at their university using the social network site's internal search engine (Encounter 14; Pearson's  $r=.74$ ,  $p<.001$ ). Alongside the very low variance explained and the low loading for Encounter 1, such high correlations were indicative that the model might have benefited from grouping the three encounters together and then separated from the rest of the encounters in the passive strategy.

There was also a theoretical justification for dividing the passive strategy into two separate strategies. At the time of data collection in September 2011, social network sites such as Facebook offered a range of customisable privacy rules, commonly known as 'privacy settings', that dictated the audiences that could view a user's content (Georgalou, 2016; Lampinen, Lehtinen, Lehmuskallio, & Tamminen, 2011; Madejski, Johnson & Bellovin, 2012; Papacharissi & Gibson, 2011). The default privacy settings for Facebook shared

users' content publically on the website (Enli & Thumim, 2012; Stutzman, Gross & Acquisti, 2013). Without modification, users' content including photographs and wall posts, was accessible to strangers rather than only their friends, family and selected others (boyd, 2010; Georgalou, 2016).

However, a norm was established at the time of data collection whereby most Facebook users modified their privacy settings to restrict access to their content to friends, family and other selected connections (Stutzman, Gross & Acquisti, 2013; Young & Quan-Haase, 2013). At the time of data collection in 2011, 60% of Facebook users had restricted most of the content on their profile pages to friends and family (Madden, 2012). The tendency for modifying privacy settings to share content only with known, narrower audiences was apparent in adults generally (Dey, Jelveh & Ross, 2012; Utz & Kramer, 2009) and in the adolescent population typifying students starting a new undergraduate degree (boyd & Hargittai, 2010; Madden et al., 2013; Madden & Smith, 2010; Marwick, Diaz & Palfrey, 2010). The trend for 'friends only' profile pages has persisted in similar samples since data collection including at the time of writing in 2016 (Buccafurri, Lax, Nicolazzo & Nocera, 2015; Georgalou, 2016; Suh & Hargittai, 2015).

Not all content on social network sites was hidden from strangers, however. Some users, albeit a minority, allowed a much wider audience access to their content, including any other user on the social network site (20%) or any other users who shared a mutual friend with themselves (19%; Madden et al., 2013). Furthermore, many social network sites allowed users to customise access on a feature-by-feature basis rather than restricting the entirety of their content (Madejski, Johnson & Bellovin, 2012). The feature-by-feature customisation was



the basis for aligning encounters to the public and private passive strategies, respectively. On Facebook, for instance, most users modified their privacy settings so that only their friends and connections could view content such as photographs and photo albums, videos, status updates, shared links and other written notes shared on their profile page (Chen & Marcus 2012; Liu, Gummadi, Krishnamurthy & Mislove, 2011; Stern & Salb, 2015). The three encounters that the statistical evidence suggested could be grouped together into a single strategy (Encounters 1, 2 and 14), however, involved content that tended to be *publically* accessible based on the norms at the time of data collection.

Encounter 1 explicitly mentioned public content in the description and referred to content posted in group pages. Encounter 2 referred to main profile photographs which, at the time of the data collection, users also had no control over their main profile photograph which remained publically available irrespective of the remaining content on the profile page (Stern & Salb, 2015). Encounter 14 referred to any content returned by the internal search engine. The internal search engine collates public content shared by the user including demographic information and wall posts which had not been set to private using the privacy settings (Brown, 2011; Carr, Schrok & Dauterman, 2012).

The ability to access private, restricted content on profile pages, such as photograph albums and wall posts, was generally delineated by whether the user attempting to view a profile page had established a 'friendship' connection with the profile owner or not (Wilson, Gosling, & Graham, 2012; Young & Quan-Haase, 2013). In the university transition scenario, many students may not have initially established friendship connections or 'friended' each other prior to starting university because they had not ever previously met nor been aware of

each other's existence prior to meeting in group pages (Alemán & Wartman, 2008). Without having established the friendship connection with each other, the behavioural norms of privacy settings meant that students would generally not have had access to the range of content available to a private passive strategy (e.g. tagged photographs, wall posts) and instead would only have had access to the limited identity cues available to a public passive strategy in Encounters 1, 2 and 14 (e.g. profile pictures, group posts).

Given the justification and the statistical evidence that three of the encounters did not fit well with the remaining encounters in the passive strategy, the original passive strategy was divided into a private passive strategy and a public passive strategy (Figure 4). The encounters aligned to a public passive strategy involved content that was typically available for all other users on the website, including strangers, to view (e.g. their main profile photograph; content shared in group pages). Conversely, the encounters aligned to the private passive strategy involved content that tended to be restricted to specific audiences such as only their friends and family who had established a friendship connection with them (e.g. photographs; wall posts; location information or 'check ins'). The active and interactive strategies remained the same resulting in a new four-strategy Model 3 given that a separate extractive strategy had already been removed earlier in the analysis in Model 2. A visual representation of Model 3 is provided in Figure 4 and listed in Table 4.

The new four-strategy Model 3, dividing the passive strategy based on whether encounters involved private and public content, provided a moderate fitting model of the encounters that students use when getting to know a group of people on social network sites,  $RMSEA=.07$  (90%  $CI$ : .06-.07,  $p<.001$ ),

$CFI=.95$ ,  $\chi^2_{(101)}=278.43$ ,  $p<.001$ . The new Model 3 separating public and private versions of the passive strategy produced a significantly better fit than the original Ramirez et al. model (Model 1) and the refined model that combined passive and extractive strategies but did not separate the between encounters involving public and private content (Model 2). First, the chi-square value for the new Model 3 was significantly greater than Model 1 ( $\chi^2_{(14)}=26.00$ ,  $p=.026$ ) or Model 2 ( $\chi^2_{(16)}=14.00$ ,  $p=.043$ ; Merkle, You & Preacher, in prep; Steiger, Shapiro & Browne, 1985). Second, the CFI metric for Model 3 was lower than Model 1 and Model 2 with both differences being greater than .02 (Cheung & Rensvold, 2002). Third, the AIC metric for Model 3 was lower than Model 1 and 2 ( $\Delta AIC=-31.99$  and  $\Delta AIC=-4.43$ , respectively; Burnham & Anderson, 2002; Hooper, Coughlan & Mullen, 2008). Together, the three statistical metrics provided strong evidence combining the passive and extractive strategies provided a better fit to the data than a model which separated them.

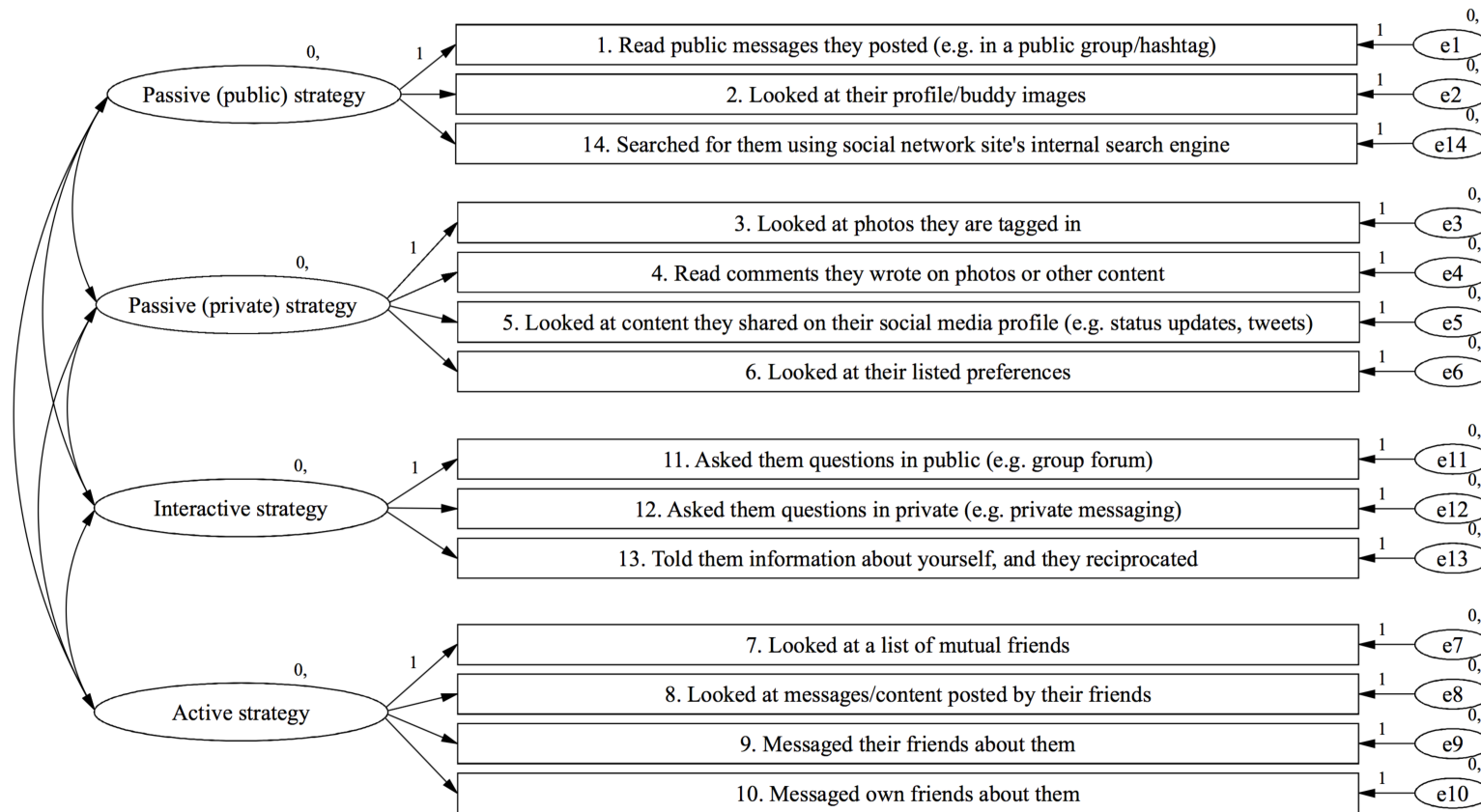


Figure 4: Visual diagram of the four-strategy Model 3 which was selected as the best description of how students tried to get to know the general type of people at their university in the weeks prior to starting university. Model divided between private and public passive strategies.

Table 4

*Confirmatory factor analysis: Factor loadings for Model 3.*

		Social network site strategies											
		Public passive strategy (3 items)			Private passive strategy (4 items)			Active Strategy (4 items)			Interactive strategy (3 items)		
		$\lambda_\beta$	$\lambda_B$	S.E.	$\lambda_\beta$	$\lambda_B$	S.E.	$\lambda_\beta$	$\lambda_B$	S.E.	$\lambda_\beta$	$\lambda_B$	S.E.
Encounter													
1	Read public messages they posted	0.16	1.00	0.00									
2	Looked at their profile/buddy images	0.79	4.84	1.87									
14	Searched for them using social network site's internal search engine	0.32	1.95	0.82									
3	Looked at photo they are tagged in				0.85	1.00	0.00						
4	Read comments they wrote on photos or other content				0.77	0.90	0.05						
5	Looked at content they shared on their social media profile				0.78	0.92	0.04						
6	Looked at their listed preferences				0.61	0.72	0.05						
7	Looked at a list of mutual friends							0.68	1.00	0.00			

8	Looked at messages/content posted by their friends				0.52	0.76	0.15	
9	Messaged their friends				0.56	0.84	0.17	
10	Messaged own friends				0.65	0.96	0.12	
11	Asked them questions in public (e.g. group forum)							0.51 1.00 0.00
12	Asked them question in private (e.g. private messaging)							0.89 1.74 0.23
13	Told them information about yourself, and they reciprocated							0.74 1.44 0.17
Cronbach's $\alpha$ reliability		.71	.81	.78				.75

$\lambda_{\beta}$  = Standardised factor loading

$\lambda_B$  = Unstandardised factor loading

Table 4 displays the factor loadings for Model 3 which conceptualised how students tried to get to know each other on social network sites in the weeks prior to starting university using an active strategy, an interactive strategy, and separate private and public versions of the passive strategy. Per the reporting practices for confirmatory factor analyses outlined by Jackson, Gillaspay and Purc-Stephenson (2009), both the standardised and unstandardised factor loadings for Model 3 are provided alongside the standard error for that loading.

In Table 4, factor loadings are only reported when encounters were explicitly loaded onto a given strategy by the researcher when specifying the model. Similar factor loadings are not reported for encounters that were not explicitly aligned to a strategy because confirmatory factor analysis assumes zero crossloadings unlike in an exploratory factor or principal components analyses (Brown, 2015). There were no loadings to report. Instead, modification indices were used to assess the possible impact of realigning encounters to other strategies (Jackson, Gillaspay Jr., & Purc-Stephenson, 2009; MacCallum, 1995). It would be inappropriate to combine the factor loadings in Table 4 and modification indices because the metrics cannot be directly compared with the former being a regression coefficient (Brown, 2015) and the latter including a change in Chi-square value ( $\Delta\chi^2$ ; MacCallum, 1995).

Modification indices are provided in Table 5. Although Table 5 includes factor loadings in the form of regression coefficients, the coefficients are not comparable with those in Table 4 because the coefficients are from different statistical models. Table 4 is the statistical model for Model 3 whereas Table 5 is based on 42 separate statistical models with each model having the named encounter aligned to a different strategy.

Table 5

*Modification indices for Model 3.*

Encounter	Strategy loading											
	Passive			Active			Interactive			Extractive		
	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$	$\Delta\chi^2$	$\Delta B$	$\Delta\beta$
1. Read public messages they posted				1.24	-0.41	-0.17	0.74	-0.12	-0.06	1.90	-0.24	-0.19
2. Looked at their profile/buddy images				1.51	-0.49	-0.21	0.58	0.09	0.06	1.53	-0.19	-0.11
3. Looked at photo they are tagged in				1.43	0.43	0.19	1.18	-0.19	-0.10	1.38	-0.18	-0.17
4. Read comments they wrote on photos or other content				1.90	0.30	0.22	0.70	0.11	0.07	1.28	0.17	0.14
5. Looked at content they shared on their social media profile				1.74	0.26	0.17	0.90	0.14	0.09	1.22	0.16	0.13
6. Looked at their listed preferences				0.70	0.08	0.06	1.34	0.21	0.11	2.07	-0.34	-0.22
7. Looked at a list of mutual friends				0.87	0.13	0.09	0.33	-0.05	-0.03	1.85	0.24	0.20
8. Looked at messages/content posted by their friends	2.03	0.27	0.19				3.01	0.95	0.39	2.03	0.25	0.15
9. Messaged their friends	2.27	-0.39	-0.26				2.93	0.89	0.34	2.33	0.30	0.18
10. Messaged own friends	1.59	0.26	0.18				1.22	0.38	0.17	1.14	-0.14	-0.11



11. Asked them questions in public (e.g. group forum)	1.49	0.22	0.15	1.86	0.56	0.23				3.04	0.99	0.41
12. Asked them question in private (e.g. private messaging)	2.20	0.38	0.27	1.91	-0.27	-0.22				0.69	-0.11	-0.06
13. Told them information about yourself, and they reciprocated	1.51	-0.24	-0.17	1.40	-0.46	-0.19				0.52	0.08	0.05
14. Searched for them using social network site's internal search engine	1.98	-0.30	-0.21	1.88	0.56	0.26	0.64	0.10	0.09			

$\Delta\chi^2$  refers to the change in Chi-squares a result of realigning the encounter to the named strategy.

$\Delta B$  and  $\Delta\beta$  refers to the unstandardised and standardised regression weights that would result from realigning the encounter to the named strategy.

Interpretation of Table 4 indicated that the encounters loaded strongly onto the strategies to which they were aligned as evidenced by the standardised factor loadings being above .30 for all but one encounter (Watson, Clark, Weber, Assenheimer, Straus & McCormick, 1995). Encounter 1 had a relatively low standardised loading onto the public passive strategy ( $\lambda_{\beta}=0.16$ ).

Encounter 1 referred to students having read the posts that other students had shared in a public area. Per Table 5, the modification indices indicated that the model fit would not significantly change if Encounter 1 was realigned to the public passive ( $\Delta\chi^2_{(2)}=1.05, p=.592$ ), interactive ( $\Delta\chi^2_{(2)}=3.73, p=.154$ ) and active strategies ( $\Delta\chi^2_{(2)}=2.97, p=.227$ ).

Aside from Encounter 1, the remaining encounters aligned to the public passive strategy were Encounters 2 and 14 which referred to students viewing others' profile images and searching for each other using the internal search engine functionality of the social network site, respectively. Feasibly, Encounter 1 may have weakly loaded onto the public passive strategy because the encounter most closely reflects the mechanism through which students would have become aware of each other in the weeks prior to starting university. The encounter involved content shared in public areas on a social network sites, including group pages where many students in the focus groups reported having first met each other. Without having accessed those group pages, students may not have found each other and therefore they would not have been had any of the other encounters aligned to the public passive strategy nor any of the encounters aligned to the other strategies in the inventory. Encounter 1 may be a gating encounter for the rest of the other encounters and strategies meaning that some of the variance in the data explained by students' use of Encounter 1 would extend

beyond the public passive strategy hence the lower factor loading. Given the feasible theoretical explanation and the lack of any modification indices warranting realignment, Encounter 1 remained aligned to the public passive strategy.

No further modification appreciably impacted the model fit. For example, a final examination of the modification indices for Model 3 indicated that the active strategy might have warranted modification or complete removal (Table 5). The change in Chi-square values indicated that the model fit could have improved if many of the encounters aligned to the active strategy were associated with the private passive or interactive strategy instead. Also, the frequency of students having two of the encounters aligned to an active strategy was particularly low. Specifically, most students did not use or used a social network site very infrequently to identify mutual friends with people at their university and then asked those mutual friends about them either online (95.3%;  $n=222$ ) or offline (77.3%;  $n=180$ ). The low use of those two active strategy encounters was likely explained by how the active strategy applied to the social scenario explored in this study. An active strategy involves students getting to know each other through other people that know them. In the weeks prior to university, students were unlikely to have many mutual friends with the people at their university therefore they would have been unable to have some of the encounters aligned to an active strategy.

Given the statistical evidence and a theoretical justification, a fourth model was created that removed the two encounters aligned to the active strategy and realigned the one remaining encounter with the private passive strategy (Figure 5). Model 4, however, produced a significantly weaker fit to the data

than any of the earlier models that included an active strategy. First, the chi-square value for the new Model 4 was significantly greater than Model 3 ( $\chi^2_{(14)}=26.00$ ,  $p=.026$ ) or Model 1 ( $\chi^2_{(14)}=26.00$ ,  $p=.026$ ; Merkle, You & Preacher, 2014; Steiger, Shapiro & Browne, 1985). Second, the CFI metric for Model 4 was lower than Model 3 and the difference being greater than .02 (Cheung & Rensvold, 2002). Third, the AIC metric for Model 4 was greater than Model 3 ( $\Delta AIC=17.29$ ; Burnham & Anderson, 2002; Hooper, Coughlan & Mullen, 2008). Consequently, the fourth model was rejected suggesting that an active strategy was a useful addition when describing to how students try to get to know each other on social network sites.

There remained no other convincing statistical evidence for modifying the best fitting model. The best fitting description of how students get to know each other on social network sites in the weeks prior to starting university was Model 3 which included interactive and active strategies and separated the passive strategy into encounters involving content on social network sites that tended to be protected behind privacy settings and content that was more publically available. The model was considered superior to Berger's (1979) and Ramirez et al.'s (2002) original model (Model 1) and alternative models (Models 2 and 4), based on the statistical evidence and theoretical justification outlined.

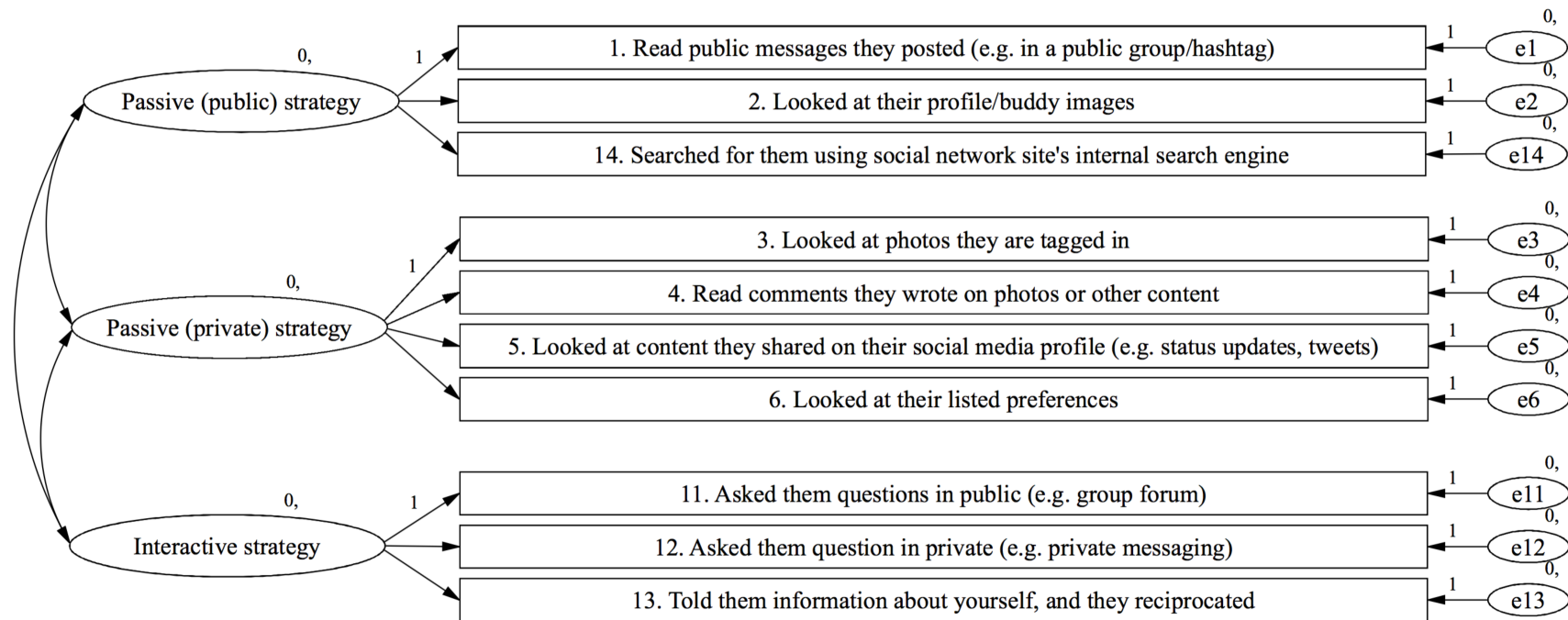


Figure 5: Visual diagram of the four-strategy Model 4 which removed the active and extractive strategies, retained the interactive strategy and divided the passive strategy based on public and private nature of the content on a social network site.

### Principal components analysis

A principal components analysis also assessed whether and how the sixteen social network site encounters measured in the study could be divided into separate strategies. Principal components analysis was chosen over an alternative exploratory technique named exploratory factor analysis.

A benefit of principal components analysis was that the analysis created a *descriptive* model of the encounters in the study, meaning that relatively few assumptions were made about the casual mechanisms underlying the structure and patterns of how students got to know each other on social network sites in the weeks prior to starting university (Fabrigar, Wegener, MacCallum, Strahan & 1999). Exploratory factor analysis, in comparison, would have created a more *explanatory* model and made more assumptions about the causal mechanisms underlying the structure and patterns of how students got to know each other on social network sites. Those assumptions would have been made primarily by the automated statistical calculations involved in exploratory factor analysis rather than by the researcher's a-priori expectations based on theory. One of the assumptions made by exploratory factor analysis would have been that only a single causal mechanism was responsible for a student choosing each strategy. The assumption was considered inappropriate because Ramirez, Walther, Burgoon and Sunnafrank (2002) suggested that there are multiple competing mechanisms explaining why people choose certain methods to get to know others.

Preliminary analysis indicated that the dataset was suitable for principal components analysis insofar that statistical correlations existed between the encounters, that some of those correlations were moderate, and that those

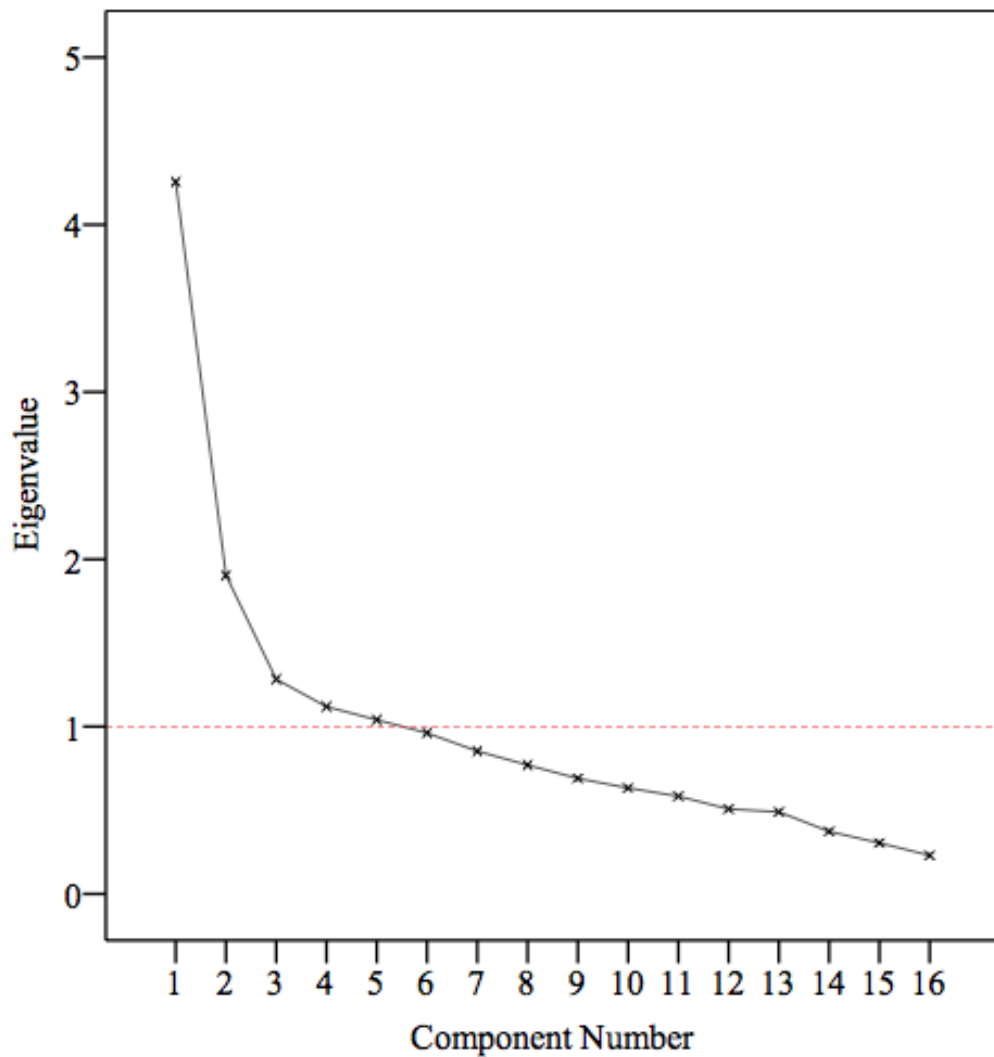
correlations were in distinct patterns (Dziuban & Shirkey, 1974). These circumstances were indicated by two tests. First, the Bartlett's test of sphericity was statistically significant which was indicative of there being several moderate correlations between the encounters, rather than excessively strong correlations or no correlations at all which would make factor analysis difficult,  $\chi^2_{(120)}=10622.834$ ,  $p<.001$  (Dziuban & Shirkey, 1974). Second, those correlations were likely to be in several distinct patterns rather than a single pattern as indicated by the Kaiser-Meyer-Olkin measure of sampling adequacy (.781) yielding a value greater than .500 (Hutcheson & Sofroniou, 1999; Kaiser, 1974).

When conducting the principal components analysis in MPlus, an oblique rotation method was chosen because the method allows for correlations between the strategies whereas orthogonal rotation methods such as varimax rotation assume there is no correlation (Gorsuch, 1983; Tabachnick & Fidell, 2007; Thurstone, 1935; 1947). The researcher expected moderate to strong correlations between the strategies given that students who use social network sites more often are likely to have greater opportunity to use each of the strategies more than students who use the same site but less often.

Of the various methods of oblique rotation, the direct quartimin method (Jennrich & Sampson, 1966) was selected to make the statistical analysis simpler and easier to interpret. The direct quartimin method helps to accentuate encounters that have strong loadings to a strategy and understate encounters with weak loadings, ultimately making the numbers in the matrix both simpler and easier to read than other oblique rotation methods (Jennrich & Sampson, 1966).

The automated principal components analysis divided the encounters that students used into five strategies (Table 6). Strategies were rejected if they had eigenvalues less than 1.00 because those strategies would contribute more variance to the model but explaining less variance overall, unlike strategies with eigenvalues over 1.00 which contributed less variance to the model that it was explaining (Kaiser, 1960). Including strategies with eigenvalues under 1.00 would ultimately make the model a poorer fit to the data whereas including strategies with eigenvalues over 1.00 would improve the model fit. Figure 6 displays the eigenvalues dropping below 1.00 after five strategies.





*Figure 6.* Screeplot showing eigenvalues for a principal components analysis of the strategies that students used to get to know a group of people on social network sites.

The five-strategy model explained a good, sizeable 60.12% of the variance in the encounters that students used, which compares favourably to the only comparable measure for social network sites created by Antheunis, Valkenburg and Peter (2010) that explained 69% of the variance in their measure though with fewer questions.

Encounters were selected as markers of each strategy based on the loading being greater than .30 (Watson, Clark, Weber, Assenheimer, Straus & McCormick, 1995). The loadings for each strategy are shown in Table 6, with the markers of each strategy in bold and excluded markers in regular font.

Table 6

*Rotated loadings for the five strategies identified during a principal components analysis.*

		Strategy				
		1	2	3	4	5
		Private passive	Interactive	Active	Extractive	Public passive
Eigenvalue		4.24	1.87	1.33	1.15	1.03
Variance explained (%)		26.50	11.71	8.30	7.20	6.42
Encounter						
1	Read messages that they posted in an area that anybody else can see (i.e. in a group, event, hashtag)	0.07	0.07	0.09	0.06	<b>0.90</b>
2	Looked at their profile pictures or buddy pictures	<b>0.83</b>	-0.02	-0.15	-0.07	0.23
7	Looked at a list of your mutual friends	0.08	-0.05	0.26	0.24	<b>0.37</b>
8	Looked at public messages or other content that their friends have sent or written about them	<b>0.78</b>	0.04	-0.07	-0.04	-0.04
3	Looked at their tagged photos	<b>0.83</b>	0.07	-0.04	-0.04	0.01
4	Looked at content that they have	<b>0.76</b>	0.02	0.05	0.07	-0.15

	shared on their own profile page or account (i.e. status updates, wall posts, shared links)					
5	Read comments that they have written on their photos	<b>0.76</b>	-0.10	0.04	0.09	-0.07
6	Looked at their listed preferences (e.g. their likes/dislikes, hobbies, activities, About me/them sections)	<b>0.68</b>	0.14	-0.06	-0.14	0.05
10	Identified mutual friends online, then asked your mutual friends about them offline (i.e. face-to-face, phone)	0.16	-0.03	<b>0.38</b>	<b>0.35</b>	-0.17
9	Sent a message to one of their friends asking about them (only online)	-0.09	-0.04	<b>0.79</b>	-0.05	0.12
12	Asked them questions about themselves in a private area (i.e. private/direct message or private chat)	0.24	<b>0.42</b>	0.04	0.02	-0.27
11	Asked them questions about themselves in an area where other people can see what you've asked (i.e. in a group, event, hashtag)	-0.05	<b>0.75</b>	0.02	0.12	0.22
13	You told them things about yourself first, and they replied by telling you	0.08	<b>0.72</b>	0.27	0.02	-0.01

	things about themselves							
14	Searched for information about them							
	using the social network site's search	0.02	0.07	-0.01	<b>0.76</b>	0.21		
	(i.e. internal search that only							
	includes results from that site itself)							
15	Searched for information about them							
	using a general social engine (i.e.	-0.13	0.15	-0.11	<b>0.80</b>	-0.12		
	Google; Bing; Yahoo)							
16	Searched for and read							
	messages/content that they have	0.03	0.02	-0.15	<b>0.58</b>	-0.07		
	posted on a different social network							

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Four strategies broadly typified the public passive, private passive, interactive, active strategies identified in the confirmatory factor analysis and which broadly built upon the strategies identified in previous research (e.g. Berger, 1979; Ramirez et al., 2002). The public passive (6.42%), private passive (26.50%), interactive (11.71%), active (8.30%) strategies each accounted for a good, sizeable proportion of the variance in the encounters that students used. The fifth strategy accounted for the extractive strategy that was rejected in the confirmatory factor analysis (7.20%).

There were some instances in which an encounter typified more than one strategy. Cross-loadings were permitted given that moderate to high correlations between encounters were expected. Heavy users of social network sites are likely to have a greater opportunity for each of the encounters than students who use

the same site less often. However, researchers have identified circumstances where cross-loadings may be problematic including: i) an encounter loading onto another strategy at a strength of more than half the encounter's primary loading (Saucier, 1994), ii) an encounter also loading onto another strategy with the difference between that loading and the encounter's primary loading being less than .20 (Bedford, 1997), or iii) an encounter being aligned to a strategy that was different to the strategy in the confirmatory factor analysis (Saucier, 1994).

There were two instances of problematic cross-loadings. The first instance was Encounter 10 which asked participants whether they had "identified mutual friends online, then asked your mutual friends about them offline (i.e. face-to-face, phone)". The encounter was problematic by crossloading onto two strategies, in this case the two strategies that would otherwise be described as the active strategy and the extractive strategy.

The crossloading of Encounter 10 highlighted a wider issue insofar that the encounters that typify active or extractive strategies were infrequently used compared to the passive and extractive strategies which were much more frequently used. For example, students may use the search engine functionality of Facebook but the returned results commonly returned about a person fail to provide much additional information compared to viewing that person's profile page which is often the next step after searching for them. Similarly, an encounter involving mutual friends may not be suitable in the specific scenario explored in the thesis given that the students may not have any friends in common because most students are geographically disparate prior to starting university. Consequently, a degree of crossloading between encounters that would otherwise typify active and extractive strategies was expected because

those encounters shared a high level of disuse or under-availability unlike the encounters aligned to the passive and interactive strategies that are more commonly used by students (Pempek, Yermolayeva & Calvert, 2009). The explanation for the crossloading of Encounter 10 was supported insofar that students in the current study scarcely used Encounter 10 or the remaining encounters that typified active and extractive strategies. The researcher opted to retain Encounter 10, aligning the encounter to the active strategy only. The encounter was tentatively aligned to the active strategy because the encounter was most theoretically and semantically similar to the other encounters aligned to that strategy, and the encounter loaded more strongly onto the active strategy than any other strategy. Further research is required to determine whether such an alignment can be replicated in a separate sample.

The second instance of an encounter with a problematic crossloading was Encounter 2, which asked students whether they had “looked at their profile pictures or buddy pictures”. The problem was that Encounter 2 loaded onto the *private passive* strategy in the principal components analysis whereas the same encounter loaded onto the *public passive* strategy in the confirmatory factor analysis. If the distinction between public and private was to remain, then the encounter would have been theoretically similar to the public passive strategy because profile images can usually be viewed irrespective of privacy settings. The encounter did not fit well with the private passive strategy because encounters in that strategy were defined by encounters being restricted by privacy settings.

One option to deal with crossloading of Encounter 2 was to redefine the strategies themselves. The distinction between private and public strategies from

the confirmatory factor analysis could have been entirely redefined. For instance, the private passive strategy could have been redefined to encompass Encounter 2 by making no mention of privacy settings and instead encompassing any encounter that involved a core feature of a user's online profile (e.g. any feature on a user's central Facebook profile page). However, the suggestion of redefining the private passive strategy broke down when considering how to redefine the public passive strategy in a manner that would encompass both Encounter 1 and Encounter 7. Those encounters involved viewing publically available content posted by individuals who are part of a group of people on social network sites (e.g. using Facebook groups or hashtags) or viewing a list of their mutual friends. By removing the distinction between public and private content, there remained no obvious or feasible reason that Encounter 1 and 7 could be linked. Furthermore, rerunning the confirmatory factor analysis to make such a change produced a worse fit than the when Encounter 2 was part of the public strategy. Consequently, there was no credible theoretical basis for redefining the distinction between private and public strategies to account for the crossloadings in the principal components analysis.

Given the above, the notion of redefining the private and public passive strategies was rejected in favour of the four-strategy model that was identified in the confirmatory factor analysis (identified in the preceding subsection as Model 3, shown in Figure 4). The four factor Model 3 divided between public and private passive strategies alongside the interactive and active strategies. The four-strategy model was deemed the most theoretically and statistically appropriate description of how students got to know group of peoples on social network sites in the weeks prior to starting university.



The decision to cede to the four-strategy Model 3 identified in the confirmatory factor analysis was taken because, unlike confirmatory factor analysis, principal component analysis does not involve any inferential testing of whether an encounter is best aligned to one strategy over another. Despite the inferential testing involved in the confirmatory factor analysis, the four-strategy Model 3 was not considered to be a comprehensive answer to research question 1. Instead, the four-strategy model was a tentative answer to the research question pending replication in a separate sample.

An alternative explanation for the crossloading of Encounter 2 is that the wording may have confused students into thinking that they were being asked about two separate encounters rather than a single encounter. When designing the wording of Encounter 2, the term 'buddy picture' on MySpace.com was considered synonymous with 'profile picture' on Facebook (Rosen, 2007). Both terms referred to the single profile image that was prominent on their profile page and was shown alongside any content that they posted on the social network site. On the MySpace social network site, the term 'buddy picture' was derived from the profile image being prominent within other users' friends' lists which were referred to as 'buddy lists' (Rosen, 2007).

MySpace usage was in decline at the time of data collection in August and September 2011 (Goodings, 2012; Torkjazi, Rejaie & Willinger, 2009). The decline of MySpace was apparent in this study by relatively few students in the sample using MySpace ( $n=4$ ; 1.72%). Some students may have been unfamiliar with the term 'buddy picture' and instead interpreted the term to refer to any photograph depicting the profile owner with their friends rather than as a profile image. In that scenario, students may have considered Encounter 2 to represent

two different encounters, which were i) viewing profile images, and ii) viewing any other photographs containing the profile owner and his or her friends.

The data from this study is insufficient for entirely ruling out that the terminology might have confused participants. However, there is evidence that the confusion was unlikely. There was a moderate correlation between Encounters 2 and 3 from the private passive strategy which referred to students having photographs protected behind privacy settings (Pearson's  $r=.66$ ,  $p<.001$ ). The correlation between Encounters 2 and 3 instead is similar in strength to the correlations between Encounter 2 and other encounters from the private passive strategy (e.g. Encounter 6: Pearson's  $r=.61$ ,  $p<.001$ ), the active strategy (e.g. Encounter 8: Pearson's  $r=.64$ ,  $p<.001$ ) and the interactive strategy (e.g. Encounter 12: Pearson's  $r=.56$ ,  $p<.001$ ). Encounters 6, 8 and 12 respectively referred to looking at listed preferences, looking at messages/content posted by friends, and asking questions in private. The correlation between Encounters 2 and 3 should have been notably stronger than the other correlations if there was a strong overlap in the perceived content involved in each of them. Furthermore, student feedback when designing the scale did not indicate any concern or confusion regarding the meaning of Encounter 2 nor the term 'buddy picture'.

Nonetheless, the possibility for students' confusion highlights the rapid nature of terminology change on social network sites. Future research using the inventory and encounters outlined in this thesis should avoid adopting the potentially confusing and outdated term 'buddy picture' in favour of the more widespread, generic term 'profile image' which should be a common, recognisable term across many social network sites including Facebook, Twitter and Instagram. Furthermore, there should be regular reviews of the wording

using in inventories for encounters on social network sites (including the inventory designed in this thesis) to ascertain completeness and whether the terminology might be misinterpreted due to change in usage.

*Research question 2: What is the relationship between the strategies that students use to get to know others on social network sites and how confident they are in their impressions about a group of people?*

#### Development of a structural equation model

Using structural equation modelling, a path analysis model was created to estimate the statistical relationships between the four strategies that students used to find out about people at their university, how confident those students were in their impressions about those people, and the intensity of those students' academic and social worries about university. The path analysis model included the public passive, private passive, interactive and active strategies in the same model rather than calculating four separate models for each of the strategies. The path analysis model is shown in Figure 5. The model also controlled for the theoretical influence of trait anxiety upon a students' worries (Belzer, D'Zurilla & Mayedu-Olivares, 2002; Reidy, 2004).

An unparcelled approach was adopted when defining the measures, such as impression confidence and trait anxiety, within the structural equation model. Unlike many psychology studies, the measures were not treated as average scores or total scores for each student. Instead, the measures were specified in the model using students' responses to each individual item on a scale (Bandalos & Finney, 2009). Researchers have demonstrated that an unparcelled approach produces less biased parameter estimates (Hall, Snell & Foust, 1999; Matsunaga,

2008) and estimates of model fit (Bandalos, 2002) compared to using a parcelled composite such as an average or a total score. Although a parcelled approach would have been simpler to implement, the parameter estimates and estimates of model fit were central to the assessment of the research question in this study therefore their accuracy was considered paramount and the more accurate unparcelled approach was chosen.

The model provided an acceptable fit to the data,  $\chi^2_{(76)}=2475.13, p<.001$ ; RMSEA=.06 (95% CI: .06 to .07);  $CFI=.95$ ,  $AIC=2493.01$ .

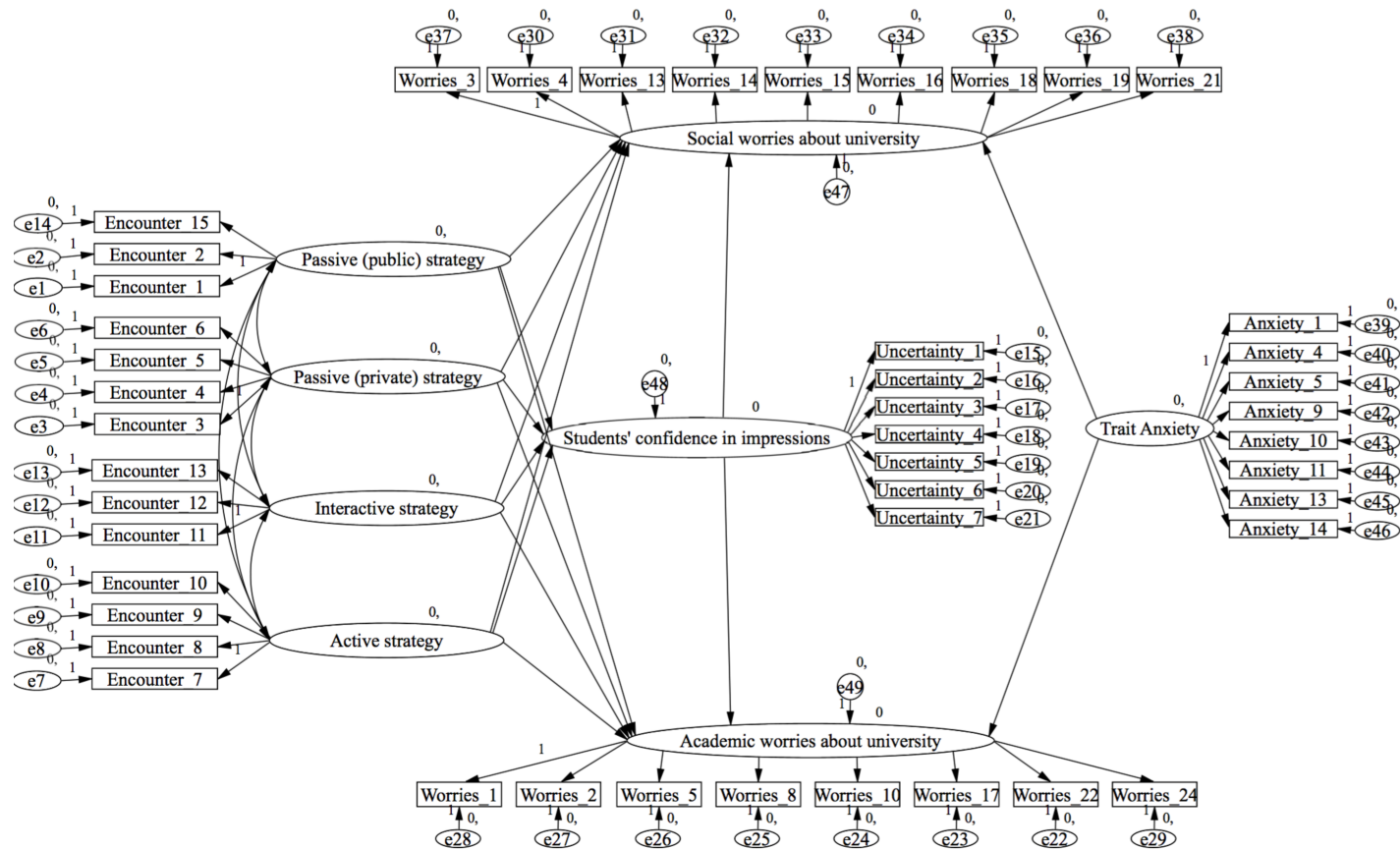


Figure 7: Path analysis model whereby the four strategies identified in Model 3 predict how confident students were about their impressions, and the intensity of their worries about university.

### Exploring the statistical relationships

By analysing the regression weights from the path analysis model outlined in Figure 7, it was possible to identify statistical relationships between the strategies that students used to get to know the general type of people at their university and how confident those students were about the impressions that they formed about them. For example, the more frequently that students used a *public* passive strategy when getting to know a group of people, then the *less* confident they were in their impressions of that group ( $\beta=-0.35$ ,  $B=-2.73$ ,  $S.E.=0.59$ ,  $t=-4.59$ ,  $p<.001$ , 95% CI: -2.79 to -2.03; Table 7). The same negative relationship was apparent for the interactive strategy ( $\beta=-0.63$ ,  $B=-1.57$ ,  $S.E.=0.42$ ,  $t=-3.78$ ,  $p<.001$ , 95% CI: -0.90 to -0.06).

In contrast, the more frequently that students used a *private* passive strategy then the *more* confident they were in their impressions ( $\beta=3.92$ ,  $B=6.63$ ,  $S.E.=1.74$ ,  $t=3.82$ ,  $p<.001$ , 95% CI: 3.75 to 6.93). Students' use of the active strategy was not linked to how confident they were in their impressions about the general type of people at their university ( $\beta=0.12$ ,  $B=0.25$ ,  $S.E.=1.01$ ,  $t=0.25$ ,  $p=.805$ , 95% CI: -1.30 to 1.15).

Table 7

*Relationships between the strategies that students use and how confident they were in their impressions.*

Strategy	$\beta$	$B$	$SE$	$t$	$p$	95% CI	
						Lower	Upper
Public passive	-0.35	-2.73	0.59	-4.59	.001 ***	-2.79	-2.03
Private passive	3.92	6.63	1.74	3.82	.001 ***	-3.75	-6.93
Interactive	-0.63	-1.57	0.42	-3.78	.001 ***	-0.90	-0.06
Active	0.12	0.25	1.01	0.25	.805	-1.30	1.15

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Multicollinearity can affect the accuracy of the statistical relationships calculated in structural equation models (Grewal, Cote & Baumgartner, 2004; Kaplan, 1994). Multicollinearity was assessed using techniques recommended by Kaplan (1994) and Grewal, Cote and Baumgartner (2004). The analysis indicated some possible issues with multicollinearity that warranted further investigation. There were strong correlations between how frequently students used public passive and private passive strategies ( $r = .89$ ) and between active and interactive strategies, ( $r = .71$ ; Table 8). Further evidence of multicollinearity was that the determinant of the correlation matrix ( $d = .003$ ) was much closer to zero than to one (Farrar & Glauber, 1967; Schmidt & Muller, 1978), and the Condition number ( $C = 84.09$ ) was greater than 30 (Belsley, Kuh & Welsch, 1980).

Table 8

*Correlations between the strategies that students used to get to know the general type of people at their university.*

Strategy	Strategy			
	Private passive	Public passive	Interactive	Active
Public passive	.89			
Interactive	.53	.40		
Active	.65	.60	.71	

To assess the effect of multicollinearity, the path analysis model in Figure 7 was recalculated four times. Each time, the model was calculated but only for the public passive strategy, private passive strategy, interactive strategy or active strategy. The remaining three strategies were excluded from analysis in turn. These temporary path models were then compared to the original path model containing all four strategies.

By examining the temporary models, multicollinearity did not appear to reverse the statistical relationships between the students' use of the four strategies and how confident they were in their impressions. As with the original model, analysis of the three new models indicated that students' less frequent use of a public passive strategy ( $B=-0.19$ ,  $S.E.=0.02$ ,  $p<.001$ ), less frequent use of an interactive strategy ( $B=-0.19$ ,  $S.E.=0.02$ ,  $p<.001$ ), and more frequent use of a private passive strategy ( $B=-0.19$ ,  $S.E.=0.02$ ,  $p<.001$ ) were associated with their greater confidence in impressions about the general type of people at their



university. The model for the active strategy failed to converge suggesting that, like the original path model, students' use of the active strategy was not linked to how confident they were in their impressions about the general type of people at their university.

Although the direction of the statistical relationships was unaffected, multicollinearity did appear to overinflate the strength of those relationships which is common in models affected by multicollinearity (Grewal, Cote & Baumgartner, 2004). The relationships between the strategies and students' confidence in their impressions were slightly stronger when the strategies were calculated in the same model (-1.03, 0.83, 0.25) than when calculated separately (-0.19, 0.41 and 0.18).

Overall, the assessment of multicollinearity meant that the answer to this research question can be stated with greater confidence. The more frequently that students used a private passive strategy when getting to know the general type of people at their university, then the *more* confident they were in their impressions of that group, whereas the more frequently students used a public passive strategy or an interactive strategy then the *less* confident they were in their impressions. Students' use of the active strategy was not linked to how confident they were in their impressions about the general type of people at their university.

*Research question 3: What is the relationship between the strategies that students use to get to know others on social network sites and how worried they are about university? Can the relationship between explained by how confident students are in their impressions about a group of people?*

The structural equation model depicted in Figure 7 also estimated the relationships between the strategies that students used to get to know about the general type of people at their university and their social and academic worries about university.

Analysis indicated various relationships between the strategies and the intensity with which students were worried about the social and academic aspects of their university experience. Furthermore, the analysis indicated that some of those relationships between strategies and worries could be explained by how confident the students were in their impressions.

Two estimates of the relationship between the strategies and worries were calculated: one for an indirect relationship between the strategies and worries, and one for a direct relationship between the strategies and worries (Bollen, 1987; Mathieu & Taylor, 2006). This type of analysis is commonly referred to as mediation, process or indirect effects analysis (Baron & Kenny, 1986; Hayes, 2013). The indirect estimate calculated the relationship between strategies and worries that could be explained by how confident students were in their impressions of a group of people, whereas the direct estimate calculated the relationship that remained unexplained by how confident students were in their impressions.

Analysis of the indirect relationship indicated that students' confidence about their impressions played a significant role in the association between their

use of the strategies to get to know the general type of people at their university and how worried they were about the academic aspects of their future university experience. There was an indirect and positive relationship between the *private passive* strategy and academic worries ( $\beta=-1.20$ ,  $B=-0.24$ ,  $SE=0.50$ ,  $t=-2.41$ ,  $p=.016$ , 95% *CI*: -0.48 to -0.13). The indirect effect indicated that the more frequently that students used a private passive strategy when getting to know the general type of people at their university then the less intense their academic worries about university. As the relationship was the indirect effect, that statistics reflected the variance in the relationship that could be accounted for by how confident students were in their impressions about a group made up of the general type of people at their university.

The more frequently that students used a *public* passive strategy when getting to know the general type of people at their university then the more intense their academic worries about university ( $\beta=1.09$ ,  $B=0.97$ ,  $S.E.=0.39$ ,  $t=2.76$ ,  $p=.006$ , 95% *CI*: 0.45 to 1.72; Table 9). A similar statistical relationship was apparent for the *interactive* strategy. The more frequently that students used an interactive strategy when getting to know the general type of people at their university then the more intense their academic worries about university ( $\beta=0.19$ ,  $B=0.06$ ,  $SE=0.05$ ,  $t=3.88$ ,  $p=.001$ , 95% *CI*: 0.01 to 0.20). In both instances, the statistical relationship was accounted for by how confident students were in their impressions of the general type of people at their university.

In contrast, the more frequently that students used a *private* passive strategy when getting to know the general type of people at their university then the less intense their academic worries about university ( $\beta=-1.20$ ,  $B=-0.24$ ,  $SE=0.50$ ,  $t=-2.41$ ,  $p=.016$ , 95% *CI*: -0.48 to -0.13). Again, the statistical

relationship was accounted for by how confident students were in their impressions of the general type of people at their university. There was no relationship between the active strategy and academic worries that could be accounted for by how confident students were in their impressions ( $\beta=-0.04$ ,  $B=-0.01$ ,  $SE=0.18$ ,  $t=-0.20$ ,  $p=.845$ , 95% *CI*: -0.04 to 0.02).

The same statistical relationships did not emerge for social worries, however. The confidence that students had in their impressions of the general type of people at their university did not play any role in relationship between the strategies that students used on social network sites and how worried they were about the social aspects of their future university experiences (Table 9). The findings did not change when including removing academic worries from the model and only including social worries. Consequently, the finding did not appear to be due to multicollinearity affecting the accuracy of statistical inferences.

Table 9

*Indirect relationships between the strategies that students used and the intensity of their worries about university, accounted for by how confident students were in their impressions.*

Strategy	$\beta$	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>		95% CI	
							Lower	Upper
<i>Academic worries</i>								
Public passive	1.09	0.97	0.39	2.76	.006	**	0.45	1.72
Private passive	-1.20	-0.24	0.50	-2.41	.016	*	-0.48	-0.13
Interactive	0.19	0.06	0.05	3.88	.001	***	0.01	0.20
Active	-0.04	-0.01	0.18	-0.20	.845		-0.04	0.02
<i>Social worries</i>								
Public passive	0.32	1.47	0.37	0.87	.382		1.29	1.73
Private passive	-0.36	-0.36	0.39	-0.91	.362		-1.25	-0.36
Interactive	0.06	0.09	0.03	1.72	.086		0.00	0.12
Active	-0.01	-0.01	0.09	-0.12	.905		-0.15	0.06

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

The role of multicollinearity in the above relationships was also assessed in the same way as in the preceding research question 2. Specifically, each of the statistical relationships was recalculated but including only a single strategy at a time. As with social worries, the direction of the statistical relationships was unaffected by multicollinearity for academic worries (private passive:  $B=0.17$ ,  $S.E.=0.05$ ,  $p=.001$ ; public passive:  $B=-0.04$ ,  $S.E.=0.01$ ,  $p<.001$ ; interactive:  $B=-0.03$ ,  $S.E.=0.01$ ,  $p<.001$ ). However, multicollinearity overinflated the strength of

those relationships although this was relatively minor and did not affect their interpretation of the results.

The previous analysis indicated that there was a statistical relationship between how students used the passive and interactive strategies to get to know people at their university and how worried those students were about the academic aspects of their future university experience, and that the relationship could be accounted for by how confident students were in their impressions about the general type of people at their university. Further analysis, however, indicated that students' confidence was not the full picture and that other factors may need to be considered.

Specifically, there was a component of the relationship between the students' use of the four strategies and their academic worries about university that remained unexplained by how confident those students were in their impressions about the general type of people at their university. The finding was indicated by statistically significant direct relationships between the passive strategies and students' academic and social worries about university (Table 10). In the current study, the direct relationships reflect the variance of the relationship between the students' use of the strategies and their worries that could not be explained by how confident those students were in their impressions about a group of people. The relationships did not alter when isolating each of the strategies to account for multicollinearity.

Table 10

*Direct relationships between the strategies that students use and the intensity of their worries about university, not accountable for by how confident students were in their impressions.*

						95%	
						Confidence	
						Interval	
Strategy	$\beta$	$B$	$SE$	$t$	$p$		
<i>Academic worries</i>							
Public passive	1.08	0.96	0.44	2.47	.014	*	0.14 0.99
Private passive	-1.00	-0.20	0.45	-2.24	.025	*	-0.28 -0.18
Interactive	0.14	0.04	0.38	0.38	.701		-0.27 0.00
Active	-0.13	-0.03	0.49	-0.27	.789		-0.02 0.01
<i>Social worries</i>							
Public passive	-0.70	-3.18	0.55	-1.28	.202		-1.73 0.91
Private passive	0.79	0.79	0.53	1.47	.141		-0.89 0.40
Interactive	-0.55	-0.81	0.26	-2.09	.036	*	-0.83 -0.55
Active	0.35	0.45	0.17	2.07	.039	*	0.08 0.61
* $p<.05$ , ** $p<.01$ , *** $p<.001$							

In summary, this mediation analysis indicated that there were relationships between the students' use of the passive and interactive strategies, and the intensity of their worries about the academic aspects of their future university experiences. Part of those relationships were accounted for by how confident

those students were in their impressions about a group of people, namely the general type of people at their university. However, the role of students' confidence in their impressions was not a complete explanation. Instead, the statistical evidence suggested that there remained some part of the relationships between those students' use of those strategies and their academic worries that may not be explained by their confidence. There was no relationship, however, between the students' use of the passive and interactive strategies, and the intensity of their worries about the social aspects of their future university experiences that could be accounted for by how confident those students were in their impressions about the general type of people at their university.

## Discussion

This chapter reported on a questionnaire study that examined how people form impressions about a *group of people* during early stages of a relationship on social network sites, with a specific focus on incoming undergraduate students in the weeks prior to starting to university who form impressions about the general type of people at their new university.

Previous research has examined the strategies that people use when getting to know a *specific individual* during early stages of a relationship on social network sites (e.g. a specific person at a university; Antheunis & Schouten, 2011; Jin, 2013; Van Der Heide, D'Angelo & Schumaker, 2012; Walther, Van Der Heide, Hamel & Shulman, 2009, Utz, 2010). The questionnaire study reported in this chapter has expanded that research by demonstrating that only certain strategies are linked to how confident students



are in their impressions of a *group of people* during early stages of a relationship on social network sites.

*Strategies that people use to when first getting to know a group of people*

The current study highlighted that students use four strategies on social network sites when attempting to get to know a group of people at their university. These were the public passive, private passive, interactive and active strategies. The active and interactive strategies mirrored the active and interactive strategies used by previous researchers to describe how people get to know others in a range of other online and offline environments (e.g. Antheunis, Valkenburg & Peter, 2010; Berger, 1979; Gibbs, Ellison & Lai, 2011; Ramirez, Walther, Burgoon & Sunnafrank, 2002).

A single passive strategy identified in the previously cited research was not replicated in the current study. A distinction emerged in the current study between passive strategies consisting of encounters that at the time of data collection tended to involve content that was *private* and protected behind strict privacy settings (e.g. wall posts, tagged photographs), and encounters involving content that tended to be *publicly* accessible irrespective of privacy settings (e.g. messages in public groups; profile photographs). The distinction between public and private passive strategies was not reported by Antheunis, Valkenburg and Martin (2010) who instead reported that their participants used a single, undivided passive strategy to get to know others that they had just met on the Hyves social network site. Compared to the current study where data collection took place in 2011, the distinction may not have emerged due to a limited awareness and uptake of privacy settings on social network sites at the time of

Antheunis et al.'s data collection in 2006. Users of social network sites prior to 2010 were less aware (Stutzman, Vitak, Ellison, Gray & Lampe, 2012; Vitak, 2012) and less frequently employed privacy settings to limit access to their profile content compared to the time of data collection in the current study (boyd & Hargittai, 2010; Dey, Jelveh & Ross, 2012; Stutzman, Gross & Acquisti, 2013; Madden, 2012; Stutzman & Kramer-Duffield, 2010; Madejski, Johnson & Bellovin, 2012; Young & Quan-Haase, 2013).

The proposed explanation remains tentative despite evidence that norms of privacy settings changed over time. An alternative explanation remains insofar that the type of social target could account for the distinction between public and private passive strategies emerging in the current study but not Antheunis et al.'s study. The current study investigated students getting to know a broad *group of people* on a social network site whereas Antheunis et al. investigated people getting to know a *specific individual*. It remains unclear why the distinction between public and private passive strategies identified in this study would be affected by whether the social target is a group of people or a specific individual. Social network sites offer users the same privacy management settings and restrictions when getting to know a specific individual (e.g. a specific housemate, a coursemate) as when getting to know constituent members of a broad group. However, the design of the current study does not preclude the possibility of a difference between the two social targets. Given the uncertainty, further research should explore whether the distinction between public and private passive strategies is restricted only to getting to know a group of people or if the distinction is also useful for understanding how people get to know a specific individual when surrounded by behavioural norms for strict privacy settings on

social network sites. Furthermore, the distinction between the public and private passive strategies remains tentative due to only being apparent in a confirmatory factor analysis but not a principal component analysis therefore further data is required to identify whether the distinction can be replicated.

### *Confidence in impressions about a group of people*

The findings in the current study were broadly similar to those of Antheunis, Valkenburg and Peter (2010) insofar that the confidence that people had in their impressions of others was related to the strategy that students used when getting to know people on social network sites. Whereas Antheunis et al. focused only on impressions about a *specific individual*, the current study highlighted that the differences between the strategies can be extended to impressions about a *group of people*. The two studies differed in the nature of those relationships, however. Antheunis et al. reported that their participants' use of a passive strategy was *not* linked to how confident their participants were in their impressions about a specific individual that they had recently met on a social network site. In contrast, the current study demonstrated a link between students' confidence in their impressions and the passive strategy but that the link depended on whether the strategy involved encounters whereby the content was normally protected by privacy settings. The more frequently that students used a private passive strategy (e.g. viewing tagged photographs, status updates, likes and preferences) to get to know people at their university, then the *more* confident that those students were in their impressions of the people at their new university. In contrast, the more frequently that students used a public passive strategy such as viewing the content that others had shared in public groups or the profile images

of people at their university then the *less* confident those students were in their impressions of that group.

A tentative explanation for students' confidence in their impressions differing between whether they used public and private passive strategies is that students' impressions were affected by the verifiability of the identity cues used to form those impressions. The extent that people are confident in their impressions is affected by whether they expect the identity cues used are verifiable or not (DeAndrea, 2014). After initially meeting online, online daters become more confident by verifying their impressions about potential dates through comparing photographs, autobiographical descriptions, and other content shared on the website (Gibbs, Ellison & Lai, 2011).

The same verification technique of cross-referencing content used in dating website may also be applicable to social network sites. On social network sites, a private passive strategy provides comprehensive access to a profile page containing an abundance of content and identity cues in status updates, photographs, and interactions on the comment threads that would have amassed over time and in some case over several years. In contrast, a public passive strategy offers access to a more limited set of identity cues restricted to those within a profile image and content shared most recently by users in group pages for a university, course or accommodation block. A private passive strategy could have enabled students to more thoroughly verify identity claims by cross-referencing a more abundant set of identity cues than a public passive strategy, leading the students to be more confident about their more verifiable impressions formed from the private passive strategy but less confident about their less verifiable impressions formed from the public passive strategy.

Verifiability may have been exacerbated by the two strategies accessing content and identity cues presented to different audiences. On social network sites, the private passive strategy offers access to profile content shared primarily with a private audience of established connections such as friends and family (Madden et al., 2013). In contrast, the public passive strategy offers access to content shared with a much wider public including strangers. For example, profile photographs are available for all users to view online (Madden et al., 2013). Similarly, content shared in group pages for a university would have been accessible to almost entirely amongst coursemates and housemates who are strangers to one another. Friends and family would have had little reason to visit the same group page apart from if they were studying the same course or living in the same accommodation.

The distinction between public and private audiences is important because people are more prone to presenting themselves in a socially desirable manner when with friends rather than strangers (Duval & Wicklund, 1972; Froming, Walker & Lopyan, 1982; Goffman, 1959). Individuals are less cognisant of their audience when only interacting with close friends and family because they are more familiar with their audience's expectations (Goffman, 1959), the relationships are more resilient (Duval & Wicklund, 1972), the audience is likely to accept the individual irrespective of his or her behaviour (Jellison & Gentry, 1978), greater acceptance by the audience increases self-esteem which is linked to more restrained self-enhancement (Wilcox & Stephen, 2013), the audience's impressions are more inflexible to change having been established over a long period (Leary, 1993; Leary et al., 1994; Schlenker, 1975) and the audience are more likely to have a frame of reference to detect

misrepresentation than when interacting with strangers (Baumeister & Jones, 1978; Zhao, Grasmuck & Martin, 2008).

When interacting with a public audience containing a high proportion of strangers, the audience becomes more salient to an individual because the audience's impressions are more malleable due to being less developed over time, their expectations are more ambiguous and varied by virtue of being a larger group, and they do not have the frame of reference or existing knowledge about the individual to detect misrepresentation (Baumeister & Jones, 1978; Leary, 1994; Schlenker, 1975). The prediction has been supported both in online environments and face-to-face insofar that people present more restrained, less idealised versions of themselves when interacting with others with whom they have an established relationship such as their friends and family than when interacting with strangers (Tice, Butler, Muraven, & Stillwell, 1995; Walther, 2011; Warkentin, Woodworth, Hancock & Cormier, 2010).

Research also suggests that individuals are more concerned about presenting a socially desirable image when faced with large audiences than small audiences (Leary & Kowalski, 1995). The concern for maintaining a socially desirable image may be particularly strong amongst individuals using a social network site given that the potential audience who can use a public passive strategy is the massive population of all users with an account on the website compared to which the close group of friends who can use a private passive strategy and therefore comprehensively access an individual's profile would be an exponentially smaller number.

Given the discussed differences between the public and private audiences, the content and identity cues accessed by students using a public

passive strategy may have been more idealised and enhanced towards socially desirability than those accessed using a private passive strategy. Ellison, Hancock and Toma (2012) reported that online daters were sceptical of the impressions they formed about potential partners from the websites because of the implicit knowledge about their own self-presentation practices in the website.

If scepticism can result from awareness of one's own behaviour, a similar process to that in Ellison et al.'s study may have occurred amongst students in this study. Students may have been aware that others are prone to self-enhancement, either consciously or implicitly, in public environments consisting of strangers more than in private environments surrounded by close friends and family. As discussed, people are more confident in impressions formed from identity cues that they believe are verifiable (DeAndrea, 2014). Consequently, students may have been more sceptical of impressions formed using a public passive strategy due to the more public arena in which the content was produced and the self-enhancing effect that they perceived that the public arena has on identity construction. Comparatively, students may have been more confident of their impressions formed using a private passive strategy due to an awareness of the more private arena in which the content was produced and the restraining effect that has on identity construction. Further research, however, is required to determine the extent that students' impressions are affected by expectations of manipulation in public and private areas of social network sites.

Unlike with the private passive strategy which was linked to students being *more* confident, the more frequently that students used an interactive strategy (involving encounters such as chatting to others through private

messaging or chains of comments in a group page) the *less* confident they were in their impressions of the general type of people at their future university.

The difference between the relationships with students' confidence for the private passive and interactive strategies could be explained by the strategies accessing content formed for separate audiences. Privacy settings and behavioural norms result in the private passive strategy having access to content that the profile owners had created when interacting with their friends and family (Stutzman & Kramer-Duffield, 2010). In contrast, the interactive strategy involved students directly interacting with strangers (i.e. their housemates and coursemates) either in private messaging or group pages. People tend to present more restrained, less idealised versions of themselves when interacting with others with whom they have an established relationship such as their friends and family than when interacting with strangers (DeAndrea, 2014). Due to the differences between audiences, students may have had access to more idealised versions of each other when using an interactive strategy whereas they may have had access to more restrained versions of each other when using the private passive strategy. The differences in audiences and the subsequent restraint in self-enhancement may have resulted in students using an interactive strategy being less confident about their impressions because they accessed content and identity cues that were perceived a more open to enhancement than when using a private passive strategy.

The explanation is tentatively supported insofar that people forming impressions attribute more weight to identity cues when those cues are perceived as less likely to have been manipulated (Antheunis & Schouten, 2011; Hong, Tandoc, Kim, Kim, & Wise, 2012; Walther, 2011; Walther & Parks, 2002;



Walther, Van Der Heide, Hamel & Shulman, 2009). However, the cited research has focused on the expected manipulation of identity cues originating from third-parties (e.g. an profile owner's friends and family) compared to the profile owner themselves. In contrast, the explanation proposed in the current study involves students having differing expectations of manipulation amongst different identity claims made by the *same* individual in the presence of either established relationships or strangers. Further research is required to explore how students' confidence in their impressions differs when content and contained identity cues are encountered whose primary audience are established friends versus identity cues whose primary audience contain unknown strangers.

The explanations proposed in this subsection thus far make the causal assumption that impression formation processes are responsible for the link between students' use of the strategies and how confident they were in their impressions. By measuring students' responses once, this study did not preclude the direction of causality being reversed, bidirectional or involving a third unmeasured variable. Theory suggests that the relationship between a person's confidence in their impressions and their use of strategies to get to know others is bi-directional insofar that getting to know others involves both decision making and impression formation processes (Berger, 1989; Berger & Bradac, 1982; Ramirez, Walther, Burgoon & Sunnafrank, 2002; Sunnafrank, 1990). In the current study, students who were less confident about their impressions may have selectively chosen to use strategies which help them become more confident in their impressions (i.e. decision making processes). In turn, using those strategies could have differentially influenced how confident people are in their impressions (i.e. impression formation processes, as proposed).

Despite the potential for both decision-making and impression formation processes exerting an effect on the statistical relationships observed in this study, impression formation was likely the stronger of the two processes based on the difficulty reconciling the findings of this study with theories of decision making. Findings in this chapter can be interpreted within the context of a specific type of decision making theory known as media choice models (e.g. Balasubramanian, Raghunathan & Mahajan, 2005; Daft & Lengel, 1986; D'Urso & Rains, 2008; Hancock, 2007; Hancock, Thom-Santelli & Ritchie, 2004; Robert & Dennis, 2005; Whitty, Buchanan, Joinson & Meredith, 2012). The models suggest that people choose between multiple, competing communication options by weighing the merits of competing options and then selecting the option perceived most likely for achieving their goal (Daft & Lengel, 1986). In the context of students getting to know each other through social network sites, the multiple competing options available included the private passive, public passive and interactive strategies identified in this chapter.

An assumption can be made that students have the goal of forming detailed, verifiable impressions of each other prior to starting university. The goal is probable when considering that students express significant worry about not knowing the people that they were living and studying with prior to starting university (Brooks, 2005). Detailed, verifiable impressions could help tackle that worry. For students with low confidence in their impressions, the choice to select public passive and interactive strategies over a private passive strategy would have offered little merit and instead would have been counterproductive to a presumed goal of forming detailed impressions. The former strategies would have enabled students access to a sparser set of identity cues, which per the

Hyperpersonal and SIDE Models, offer the least merit in forming detailed impressions about others compared to the latter strategy (Lea & Spears, 1995; Walther, 1996). Similarly, public passive and interactive strategies would have been counterproductive because the strategies would have enabled access to identity cues that were less verifiable and more prone to self-enhancement than the identity cues accessible to a private passive strategy. Unlike identity cues accessed by a private passive strategy, identity cues accessible to public passive and interactive strategies are more prone to misrepresentation because they are created in the context of strangers who do not possess the frame of reference to detect and denigrate the user's misrepresentation (Zhao, Grasmuck & Martin, 2008).

Even if the students did not have the realistic goal of forming detailed, verifiable impressions of each other, the statistical relationships demonstrated in this study would remain difficult to reconcile with media choice models. If students used the strategies for another goal such as for entertainment purposes or to mindlessly pass their time (e.g. Timmerman, 2002) then there would be no clear incentive for students who were less confident about their impressions to have relieved their boredom using a different strategy to those who were more confident about their impressions.

The rejection of a media choice models to explain the findings also relies on students accurately perceiving the merits of the options available to them when getting to know others on social network sites prior to starting university. Feasibly, the statistical relationships demonstrated in this study could be explained by students inaccurately anticipating that impressions formed from public passive or interactive strategies would be more detailed or verifiable

compared to those from a private passive strategy. In turn, students who were lowest in confidence about their impression could have chosen the public passive and interactive strategies based on that mistaken anticipation. However, the inaccurate perception seems unlikely because students in the focus groups in Chapter 3 most commonly discussed forming impressions from photographs of others on the websites. Viewing photographs tend only to be accessible if users have friended each other therefore students would have been rejecting a strategy that they described as using most often on the websites. The dominant focus on photographs during the focus groups implies that students may have perceived some merit in a private passive strategy for getting to know others which is counter to the role that photographs would have played if students expected the strategy to have been inferior to the public passive and interactive strategies.

The attempt to reconcile media channel models with the findings of this study highlights that the dominant direction of causality is unlikely to be that students selectively chose strategies based on the confidence that they had in their own impressions. However, the design of this study cannot definitively preclude such a reversed direction of causality nor that a third unmeasured variable cannot explain the findings. Consequently, further research is required to understand the effect (if any) that confidence has on students' choice of strategies when getting to know others on social network sites and to disentangle that process from the effect (if any) that students' choice of strategies has on how confident they are in their impressions.

Other findings were similar to those of previous research. The current study identified that an active strategy, including identifying mutual friends and asking them about their new acquaintances, was not linked to how confident

students were in their impressions about a group of people. The finding is consistent with existing research examining impression formation about a specific individual in social network sites, other online and offline environments (Antheunis, Valkenburg & Peter, 2010; Douglas, 1990; Gibbs, Ellison & Lai, 2011; Sunnafrank, 1990). The finding could be explained by many of the encounters aligned to the active strategy requiring students to have mutual friends with their housemates and coursemates prior to starting university. Most students would not have had mutual friends with people at their university due to being geographically distant from each other prior to starting university. Consequently, some students would not have had the opportunity for many of the encounters aligned to the active strategy.

*Worries, and the role of confidence in impressions about a group of people*

The current study demonstrated that, in the weeks prior to starting university, the strategies that students use to get to know others at their university on social network sites are linked to how worried they are about the academic aspects of their forthcoming university experiences.

The strategy that students used to get to know others was important for understanding the relationship between the students' confidence in their impressions and their academic worries about university. A student who frequently used a private passive strategy, such as viewing tagged photos and status updates on Facebook, was *less* worried about whether he could succeed academically at that university. However, a student who uses a public passive strategy, such as viewing profile images and posts in public groups, was *more* worried about the academic aspects of university.

Part of that relationship between worries and students' use of strategies was explained by how confident students were in their impressions about people at their university. The strategy that students used when getting to know a group of people online was related to how confident students were in their impressions about a group of people, which in turn was related to how worried students were about university. A student who frequently uses a private passive strategy, such as viewing tagged photos and status updates on Facebook, may be *more* confident in his impressions about people at his university and in turn he would be *less* worried about whether he can succeed academically at that university.

The role of how impression formation, in particular students' confidence in their own impressions, is linked to worries has been alluded to by previous theory based on offline encounters and other forms of wellbeing. Researchers have theorised that people experience anxiety when they are uncertain about others with whom future interaction is unavoidable (Berger & Douglas, 1981; Douglas, 1987). However, none of those previous researchers have explicitly mentioned worries. Instead, other researchers have identified links between encounters on social network sites and different measures of wellbeing. For instance, Yang and Brown (2013) reported that voyeuristic behaviours, which are most similar to passive strategies in the current study, were associated with inhibiting students' adjustment to university. Nonetheless, Yang and Brown did not consider the role of impression formation, unlike the current study which marked the first instance in the research literature involving social network sites.

The same statistical relationships did not emerge for students' worries about the social aspects of their future university experiences. Consequently, the

extent that students were confident in their impressions was much more relevant to students' academic worries than for students' social worries.

The current study only explored impressions about a group of people. There is a lack of clarity about whether the findings linking students' use of strategies and their worries about university would be expected when considering impressions about a specific individual. Future research should continue to extend our understanding of impression formation by comparing impression formation about a group of people and a specific individual.

The confidence that students have in their impressions is not the complete picture, however. Some of the relationships between the strategies that students used and their worries about university remained unexplained by how confident the students were in their impressions. The finding suggested at least two separate mechanisms involved in the link between students' use of strategies on social network sites and worries. One mechanism involved how confident the students were in their impressions, and one mechanism did not involve the students' confidence in their impressions. One possible mechanism is that the type of messages people view on social network sites might directly alter a person's wellbeing, including their worries. The messages that people read on the social network site has been linked to their mood, self-esteem and life satisfaction although the effect on mood was dependent whether the messages were positive or negative (Coviello, Sohn, Kramer, Marlow, Franceschetti et al., 2014; Kramer, Guillory & Hancock, 2014; Valkenburg, Peter & Schouten, 2006). For example, positive messages are associated with higher mood, self-esteem and life-satisfaction whereas negative messages are associated with lower mood, self-esteem and life-satisfaction. The extrapolation of those wellbeing

findings to worries is beyond the scope of the current study and requires further research to consider how the message valence interacts with how confident students are about their impressions and how worried they are about university.

### *Conclusion*

The current study provided an insight into how people form impressions on social network sites, specifically how students form impressions about a broad group of people at their new university in the weeks prior to starting said university. The current study highlighted areas where the understanding of impression formation might benefit from amendment, and identified gaps in the current understanding that warrant further investigation.

Impression formation researchers need to account for the architectural nuances of social network sites, particularly privacy settings, when considering how people get to know each other from during the early stages of a relationship. Further study, however, was required to determine whether the distinction between passive strategies involving either public or private content can be replicated in other samples given that the finding was only tentative based on the statistical evidence.

A second issue requiring further investigation was the extent to which impression formation varies between different types of social target. Various findings from the current study differed from previous research including Antheunis, Valkenburg and Peter (2010). However, there was insufficient evidence to identify whether those differences were due to the current study focusing on impressions about a broad *group of people* whereas the only comparable research studies have explored impressions about a *specific*



*individual*. The study also only considered students' impressions about a very broad, diverse group consisting of the general type of people at their future university. Such a group of people was relatively heterogeneous with many subgroups. Although many students in the focus groups in Chapter 3 discussed forming impressions about "people at university" or "everybody at university", the same students also discussed forming impressions about more distinct and defined groups such as their coursemates as a group of people or their housemates as group of people. Based on the lack of existing research and the findings reported in this chapter, it was unclear whether impressions about more homogenous, distinct and defined groups of people would produce the same findings as in the current study which focused on broader groups of people.

Given that the issues remained unresolved, the next chapter reports on an experiment exploring impression formation on social network sites about different types of social target.

## **Chapter 5 – Comparing students’ worries and how they form impressions across different social targets on social network sites**

### **Introduction**

In the focus group and questionnaire studies described in Chapters 3 and 4, incoming undergraduate students formed impressions about a *group of people* at their university from social network sites in the weeks prior to starting university.

The findings outlined in Chapters 3 and 4 raised unresolved questions about three interlinked aspects of impression formation, including which strategies that students use when trying to get to know others on social network sites, how confident students were in their impressions formed when using those strategies, and the role that their confidence played when experiencing worry about university. The unresolved questions, which are outlined in the subsequent subsections, were related to one broad aim characterising the current study:

**When getting acquainted for the first time on social network sites, how does impression formation differ when people form impressions about a group of people compared to a specific individual?**

#### *Strategies that people use to when first getting to know a groups and individuals*

In Chapter 4, a questionnaire study demonstrated that students used a pattern of four strategies when trying to get to know a group of people on social network sites, broadly based on Berger (1969) and Ramirez, Walther, Burgoon and Sunnafrank (2002). Those strategies were the public passive, private passive, interactive and active strategies outlined below:

1. **Private passive strategy** – encounters whereby an individual unobtrusively observes others without direct interaction, but only for behaviour or content that is hidden behind privacy settings which require approval for others to access. On social network sites, a private passive strategy involves encounters such as viewing a coursemate's tagged photographs on Facebook because one must usually be a friend before being able to see most of a person's tagged photographs. The strategy involves encounters with recent and older, historical content.
2. **Public passive strategy** – encounters whereby an individual unobtrusively observes others without direct interaction, but only for behaviour or content that is not protected behind privacy settings which require approval for others to access. On social network sites, a public passive strategy involves encounters such as viewing a housemate's profile photograph on Facebook because one can usually view a profile photograph irrespective of whether a formal friendship connection has been established between two people. The strategy involves encounters with recent and older, historical content.
3. **Interactive strategy** – encounters whereby an individual directly interacts with other people.
4. **Active strategy** – encounters that are more indirect and involve an individual proactively eliciting information about others without direct interaction with them.

The strategies were similar to those used to describe how people find out about a *specific individual* in other online and offline environments (e.g. Antheunis, Valkenburg & Peter, 2010; Berger, 1979; Gibbs, Ellison & Lai, 2011; Ramirez, Walther, Burgoon & Sunnafrank, 2002). However, a key difference from previous research was dividing a passive strategy based on whether the content that students encountered tended to be hidden behind privacy settings (a private passive strategy) or not (a public passive strategy).

The division between private and public passive strategies has not been previously considered in the context of how people get to know each other on social network sites or elsewhere. The distinction remains tentative because Antheunis, Peter and Valkenburg (2010) did not distinguish between public and private versions of the passive strategy unlike Study 2. The conflict between Study 2 and Antheunis et al. could have been due to one of two reasons.

First, the private-public distinction could have been due to Antheunis et al.'s study being conducted prior to the widespread use of privacy settings. Antheunis et al. examined how people in 2006 when the default privacy settings and behavioural norms on many social network sites was profile content, including photographs or the status updates, to be publically available (Utz, 2008; Utz & Kramer, 2009). The limited use of privacy settings at the time Antheunis et al. ran their study starkly contrasts with the privacy behaviour exhibited by users of social network sites at the time data was collected for the questionnaire study conducted in Chapter 4 in 2011. Users of social network sites were more aware (Stutzman, Vitak, Ellison, Gray & Lampe, 2012; Vitak, 2012) and more frequently employed privacy settings to protect their profile content

from others (boyd & Hargittai, 2010; Dey, Jelveh & Ross, 2012; Stutzman, Gross & Acquisti, 2013; Madden, 2012; Stutzman & Kramer-Duffield, 2010; Young & Quan-Haase, 2013).

There remains a second explanation for the division of the passive strategy based on private and public content insofar that the social target in Study 2 differed from the social targets used in other similar studies. Previous researchers, including Antheunis et al., investigated the strategies that people use when get to know a *specific individual*. Study 2, however, investigated how students got know a *group of people* namely the general type of people at their university. The public-private distinction could have been irrelevant when people are trying to get to know a specific individual (i.e. an individual housemate) as opposed to a group of people. Given the ambiguity surrounded the division, this chapter reported on an experimental study that posed the following research question:

- Research question 1: Does the distinction between private and public passive strategies emerge when students get to know others on social network sites in the weeks prior to starting university? Does that distinction depend on whether students are getting to know a specific individual or a group of people?

### *Confidence in impressions about groups and individuals*

In Chapters 3 and 4, students approached their impressions with varying degrees of scepticism ranging from high confidence about their impressions to low confidence. In the questionnaire study in Chapter 4, the strategy that students

used on social network sites to get to know others was related to how confident the students were about their impressions of a general type of people at their university. The relationship differed, however, based on the strategy considered. The more frequently that students used a public passive strategy, such as viewing profile images or publically available messages in a group, then the *less* confident they would be about their impressions of that broad general group of people at their university. In contrast, the more frequently that students used a private passive strategy including viewing tagged photographs that are usually only available after having friended a person on a social network site, then the *more* confident those students were about their impressions of the general type of people at their university.

At first glance, the statistical relationships challenged the only other study exploring the link between the strategies people use to get to know others on social network sites and how confident people are in their impressions formed from those strategies. Antheunis, Valkenburg and Peter (2011) reported that a passive strategy was *not* linked to how confident people were in their impressions of another person. The conflict between the findings of the two studies may be due to one of two key methodological differences insofar that both the social target and the passive strategy differed between the studies.

The questionnaire study in Chapter 4 explored impressions about a *group of people* (i.e. the broad group of people at the students' new university) whereas Antheunis et al. and other researchers have only explored impressions about a *specific individual* (i.e. a new acquaintance). However, there remains ambiguity as to if the social target is responsible for the finding because the passive strategy differed between the studies. Unlike Antheunis et al., the questionnaire reported

in Chapter 4 divided the passive strategy based on whether encounters involved content that was public or private content based on the protection from privacy settings. Given ambiguity as to which (if any) of the explanation could account for the differences between the findings, the experimental study described in this chapter explored the following research question:

- Research question 2: Does the relationship between the strategies that students use to get to know others on social network sites and their confidence in their impressions depend on whether they are getting to know specific individual or a group of people?

The proposal that the social target influences impression formation raises another issue. In the questionnaire study reported in Chapter 4, the researcher examined how students formed impressions about a very broad group of people: the general type of people at their university. Impressions about that broad group may not be representative of impressions about a more distinct, defined group of people. In the focus groups in Chapter 3, students formed impressions about their housemates and coursemates as groups. Consequently, Research question 2 considered a range of different groups of people that students were likely to form impressions about in the weeks prior to starting university.

*Worries, and the role of confidence in impressions about groups and individuals*

In the focus groups reported in Chapter 3, students formed impressions that were related to the types of worries pertinent to them when forming their impressions, namely their social, academic and pragmatic worries about university. Some

students formed impressions that their coursemates and housemates looked more intelligent than them, relating to their worries about being able to academically succeed and compete on their university course. Other students formed impressions that their coursemates and housemates looked ‘nice’ and friendly, relating to their worries about socially integrating with their housemates and failing to make new friends at university.

The questionnaire study in Chapter 4 extended that work by highlighting that some strategies used to get to know others on social network sites were linked to more intense worries about the academic aspects of university, and that other strategies were linked to less intense academic worries. The statistical relationship was partially explained by students’ confidence in their impressions about university. For example, a student who more frequently used a private passive strategy such as viewing tagged photos and status updates was *less* confident in his impression about the people at his university. In turn, the student was *more* worried about whether he could succeed academically at that university.

The relationship between students’ use of strategies to get to know others on social network sites and their worries reported in Chapter 4 had not been explored prior to this thesis. The findings required replication, however, particularly given that the public-private distinction for the passive strategy was tentative due to issues of statistical admissibility. Consequently, the study described in this chapter acted as a replication of those findings using a different sample of students.

The relationship between strategies and worries has also only been explored in the context of impressions about a group of people: the general type



of people at their university. At the time of writing, the relationship had yet to be explored for different type of social targets such as about a specific individual, nor have there been any comparisons based on whether the impressions were about a group of people or a specific individual.

In addition, the study in Chapter 4 considered students' impressions about a relatively broad group of people, the general type of people at the students' future university. Students in the focus groups of Chapter 3, for example, formed impressions about more defined subgroups including their housemates and coursemates as separate groups of people. It is unclear whether the same findings from the questionnaire study in Chapter 4 would emerge when getting to know more defined groups. Students' worries might only be linked to their impressions concerning a group with some relevance to those worries. Given the interest in replication and exploring whether the link differed between social targets, the current study explored the following research question:

- Research question 3: Can the relationship between the strategies that students use to get to know others social network sites and their worries about university be explained by how confident they are in their impressions about others? Does that relationship depend on whether the students get to know a specific individual or a group of people?

## **Method**

### *Design*

An online questionnaire with five independent measures experimental conditions examined how impression formation differed between impressions formed about

a group of people and a specific individual. The questionnaire study explored the same applied scenario examined throughout the thesis, namely incoming first year undergraduates forming impressions about each other on social network sites in the weeks prior to starting university.

The study focused on the strategies that students used when getting to know each other, how those strategies were related to how confident the students were in their impressions of each other and how worried they were about their future university experience, and whether those relationships differed dependent on whether the impressions concerned an individual or a group of people.

### *Participants*

Four hundred and forty-eight incoming undergraduate students (285 female, 157 male, 6 declined to answer) completed online questionnaires during the weeks prior to starting a new undergraduate degree at one of 25 UK universities. Students were aged from 16 to 52 years, with a mean age of 18.82 years (*SD*: 3.44) although most were aged 17 to 23 years (96.65%). Most students originated from the UK ( $n=380$ ) rather than within (46) or outside Europe (19) or declining to answer (3). The demographics were similar to the focus group and questionnaire studies reported in Chapters 3 and 4.

Most students were due to study Physical sciences and Engineering (24.78%) or Social sciences (26.12%). To a lesser extent, students were due to study mathematics (8.71%), arts (5.80%), humanities (5.58%), management (5.58%), medicine (4.69%), law (4.24%), information technology (3.57%), languages (3.57%), education (2.90%), English (2.23%) and a cross-disciplinary degree (2.23%). The sample was roughly equivalent to the current student

demographic at UK universities (Higher Education Statistics Agency, 2012; Universities and Colleges Admissions Service, 2011; 2010). All students used Facebook. Fewer students used Twitter (57.1%), Google+ (8%), LinkedIn (1.3%) or MySpace (0.40%).

Students were randomly assigned to one of five experimental conditions, determining whether the students were asked about a specific housemate ( $n=81$ ), a specific coursemate (51), their housemates as group (84), their coursemates as a group (79), or the general type of people at their university (153).

Two separate power analyses outlined the minimum sample sizes required to detect the statistical relationships examined in the current study (Cohen, 1992). Both analyses assumed an acceptable level of statistical power (0.8). For assessing model fit, a minimum of 56 students in each experimental condition was required to ascertain whether a four-strategy model provided an acceptable fit to data ( $RMSEA < .05$ ). For estimating relationship statistics, at least 54 students were required in each experimental condition to detect a small effect size (0.25). A small effect size was expected based on the statistical relationships reported in Chapter 4, and the wide range of factors that can influence impression formation outlined in the literature review in Chapter 2. The power analyses formulae were designed for structural equation models (model fit: MacCallum, Browne & Sugawara, 1996; MacCallum, Lee & Browne, 2010; relationship estimation: Cohen, 1988; Westland, 2010).

### *Sampling procedure*

The same sampling procedure was used as the questionnaire study reported in Chapter 4. Students were recruited through Internet advertisements up to five

weeks before arriving at university, between August and September 2012. Various UK universities and Students' Unions placed links to the study on their websites or social media presence. Snowball recruitment was also used (Baltar & Brunet, 2012) with students encouraged to share links to the study with their friends on a social network site.

Students were only permitted to complete the study if starting the first year of a new course/degree at a UK university to minimise the influence of students already having met a large proportion of people at the university. For ethical reasons, only students aged 16 years or older were permitted to complete the study, though the impact was negligible because few university students are aged less than 17 years (Higher Education Statistics Agency, 2015).

### *Materials*

Students completed demographic, worries, and trait-state anxiety questionnaires. Students also completed questionnaires about the encounters they had when trying to get to know their assigned social target using a social network site, and a separate questionnaire examining how confident they were in their impressions of that social target.

### Demographics (Appendix Q)

Students provided general demographic information including age, sex, country of origin, university to be attended, course, and approximate date of arrival at university.

### Trait anxiety (Appendix R)

Trait anxiety was measured to control for the theoretical impact of anxiety on

worries (Belzer, D’Zurilla & Mayedu-Olivares, 2002; Reidy, 2004). The State-Trait Anxiety inventory (STICSA; Ree, French, MacLeod & Locke, 2008) asked students to rate the extent that 21 somatic and cognitive indicators of anxiety applied to them on a general day-to-day basis. Responses were made on a four-point scale from zero (not at all) to three (all the time). The STICSA demonstrated high internal consistency (Cronbach’s  $\alpha$  for trait anxiety subscale=.84; trait somatic subscale  $\alpha$ =.80). The STICSA was chosen for consistency with the questionnaire study in Chapter 4 and due to the scale’s high construct validity (Bados, Gómez-Benito & Balaguer, 2010; Elwood, Wolitzky-Taylor & Olatunji, 2012).

#### Students’ worries about university (Appendix S)

A worries questionnaire examined the specific worries that students experienced in the weeks prior to starting university. The New College Students’ Concerns Survey (NCSCS; Brooks, 2005) asked students to rate the extent they were worried about 25 social, academic or pragmatic aspects of starting university. Responses were rated on a five-point scale from zero (not at all concerned) to four (extremely concerned). The same questionnaire was used in Chapter 4 to facilitate comparisons between the studies. To ensure relevance to a UK university population, the word “roommates” was replaced with “housemates”.

Reliability analysis indicated that the social ( $\alpha$ =.87) and academic worries ( $\alpha$ =.77) subscales were internally consistent. However, the psychological worries subscale ( $\alpha$ =.68) was omitted from further analysis after failing to meet a minimum cut-off of .70 as recommended by Nunnally (1978).

#### Groups that students encountered prior to starting university (Appendix T)

A questionnaire asked students whether they had found, viewed or interacted with others from their university using social network sites in the weeks prior to starting university. Common groups were pre-listed (e.g. housemates, coursemates, sportsmates, lecturers). Those groups were chosen based on the focus groups, the questionnaire study and previous research (Alemán & Wartman, 2008; Madge, Meek, Wellens & Hooley, 2009). Students could add unlisted groups.

#### Encounters on social network sites (Appendix U)

Students were asked to indicate the extent that they had sixteen encounters when trying to get to know an assigned social target on a six-point scale (0=never; 5=all the time; Table 11) or indicated that an encounter was not possible using their social network sites. The wording of the encounters was identical to that used in Chapter 4 to facilitate comparisons between the studies. Students could list and rate encounters not mentioned in the questionnaire.

In Chapter 4, the structural validity of the questionnaire was tentatively demonstrated for students getting to know a general group of people, namely the general type of people at their university. However, the structural validity had not previously been examined for the other social targets used in the current study namely more specific groups of people (e.g. a student's housemates as a group) or a specific individual (e.g. a student's individual housemate). Consequently, the structural validity was examined as part of Research question 1 in the Results section.

Table 11

*Information-seeking encounters.*

Encounter
1. Read messages that they posted in an area that anybody else can see (i.e. in a group, event, hashtag)
2. Looked at their profile pictures or buddy pictures
3. Looked at their tagged photos
4. Read comments that they have written on their photos
5. Looked at content that they have shared on their own profile page or account (i.e. status updates, wall posts, shared links)
6. Looked at their listed preferences (e.g. their likes/dislikes, hobbies, activities, About me/them sections)
7. Looked at a list of your mutual friends
8. Looked at public messages or other content that their friends have sent or written about them
9. Sent a message to one of their friends asking about them (only online)
10. Identified mutual friends online, then asked your mutual friends about them offline (i.e. face-to-face, phone)
11. Asked them questions about themselves in an area where other people can see what you've asked (i.e. in a group, event, hashtag)
12. Asked them questions about themselves in a private area (i.e. private/direct message or private chat)
13. You told them things about yourself first, and they replied by telling you things about themselves
14. Searched for information about them using the social network site's search

(i.e. internal search that only includes results from that site itself)

15. Searched for information about them using a general social engine (i.e. Google; Bing; Yahoo)

16. Searched for and read messages/content that they have posted on a different social network

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### Students' confidence in their impressions (Appendix V)

Students' confidence in their impressions was assessed using the same measure of social (un)certainty as in the questionnaire study in Chapter 4. The Clatterbuck Uncertainty Evaluation Scale (CLUES7; Clatterbuck, 1979) assessed how confident students were in their impressions by asking students to indicate the extent they felt accurate predicting the behaviour, thoughts, and feelings of the assigned social target from their university.

Responses were made on an 11-point scale from zero (not at all/a total guess) to ten (completely certain). Higher scores were associated with greater confidence in their impressions. The scale demonstrated high reliability (Cronbach's  $\alpha=.91$ ).

### *Procedure*

After agreeing to an informed consent form (Appendix W), students completed the demographics questionnaire, the trait anxiety and worries questionnaires, then a questionnaire asking which groups the students had encountered on social network sites.

A random number generator allocated students to one of five experimental conditions. The experimental condition determined the social target



about whom the students were asked to consider when completing the questions about their encounters on social network sites and their confidence in their impressions. Social targets were either a general group of people, a specific group of people, or a specific individual. These social targets were operationalized as:

1. The general type of people at their university (a general group of people);
2. Their housemates as a group (a specific group of people);
3. Their coursemates as a group (a specific group of people);
4. A specific housemate of their choosing (a specific individual);
5. A specific coursemate of their choosing (a specific individual).

Students could only be allocated to an experimental condition involving social targets that they had indicated meeting on social network sites. By assigning students only to relevant social targets, the questionnaire avoided asking students about social targets that they had not encountered such as asking students about their housemates when they had only encountered their coursemates. The approach explains why there were differences in sample sizes between the five experimental conditions.

The first social target, which involved the general type of people at a student's university, matched the social target in Chapter 4 and therefore acted as a benchmark for comparing between the current study and the study reported in Chapter 4. The remaining four conditions allowed direct comparisons between students' impressions about a group of people and impressions about a specific individual.

During the focus groups in Chapter 3 and the questionnaire study in Chapter 4, students indicated they most commonly encountered their housemates and coursemates on social network sites in the weeks prior to starting university. Consequently, the conditions involving a specific group or a specific individual were defined using housemates and coursemates to make the social targets more relevant to students in the weeks prior to starting university. Students' encounters with other social targets (e.g. sportsmates) were much less common therefore were unlikely to offer enough variability in the extent to which students formed impressions about them.

After completing questionnaires, students were debriefed about the study's background then asked to share the study with friends (Appendix X). Students were also offered advice on pastoral support for worries about university.

## **Results**

Using an applied scenario, an online experiment examined differences between how students form impressions about an individual and a group of people on social network sites in the weeks prior to starting a new university.

### *Missing data strategy*

The dataset was examined for missing data that had arisen from students omitting to answer any question in the questionnaire either intentionally or unintentionally. The researcher removed 13 students for failing to complete over fifty percent of the Clatterbuck (1979) social uncertainty questionnaire.

Similar to Chapter 4, Item 12 was removed from Brooks' (2005) university worries questionnaire because a large proportion (22.74%;  $n=53$ ) of students' responses were missing which rendered the item unusable. The item read: "I will have difficulty finding a major I like", which was deemed irrelevant to students studying in the UK who tend to pick a single degree prior to starting university.

The proportion of students who omitted data for the remaining items was considerably smaller, with fewer than fifteen percent having any missing data (13.73%;  $n=32$ ). Of those students with missing data, the magnitude of their missing data was small with most students having omitted one ( $n=22$ ), two ( $n=3$ ) or three items ( $n=4$ ) across the entire study. Three students omitted four, five and six items respectively.

A Weighted Least Squares Mean and Variance adjusted estimation (WLSMV) estimation was used to calculate the statistical models considered later in the Results section. WLSMV estimation was conducted in the MPlus statistical software (Muthén & Muthén, 2012). The same approach was justified in the Missing data strategy section of Chapter 4.

*Research question 1: Does the distinction between private and public passive strategies emerge when students get to know others on social network sites in the weeks prior to starting university? Does that distinction depend on whether students are getting to know a specific individual or a group of people?*

In Chapter 4, a statistical model described how students got to know a group of people on social network sites. That model divided the encounters that students used into four strategies: the public passive, the private passive, the interactive

and the active strategies. The model offered a statistically significant improvement upon the Berger (1979) model which did not divide the passive strategy based on encounters involving hidden behind privacy settings. The current research question explored if that distinction between public and private passive strategies emerged for both a specific individual and a group of people and if that distinction significantly improved upon Berger's original model.

First, an assessment was made as to whether the refined model developed in the previous chapter offered a significant improvement over Berger's (1979) and Ramirez et al.'s (2002) original model when describing how students got to know others on social network sites in the weeks prior to starting university. Only a confirmatory factor analysis was conducted unlike the preceding chapter where a principal components analysis was also used. The justification was two-fold.

First, the current research question involved comparisons between experimental conditions. A confirmatory factor analysis is more suited to testing differences between experimental conditions than a principal components analysis. Principal components analyses generate model structures that are difficult to replicate between experimental conditions often due to differences in measurement error or minor idiosyncrasies between the conditions rather than underlying differences in the factorial structure (Konishi, 2015; Krzanowski, 1979). Comparatively, confirmatory factor analyses are less sensitive to differences in measurement error between experimental conditions and involve well-validated inferential tests to compare model structure between experimental conditions (Koh & Zumbo, 2008; Marsh & Byrne, 1993).

Second, the sample sizes for each experimental conditions in this chapter were smaller ( $n < 150$ ) than the sample size in the previous chapter ( $n > 200$ ). Splitting those samples to conduct two separate analyses would have resulted in the analyses being underpowered making the subsequent findings less credible.

For the confirmatory factor analysis, a structural model was first created in MPlus aligning the sixteen social network site encounters to one of the passive, active, interactive and extractive strategies defined in Berger's (1979) and Ramirez et al.'s (2002) original model of how people get to know each other (Figure 8). The model, labelled Model 1, was compared to the refined four-factor model defined in the previous chapter, hereafter labelled Model 2 (Figure 9). Bootstrapping and Weighted Least Squares Mean and Variance adjusted estimation (WLSMV) were used to improve the accuracy of the model fit statistics and loadings.

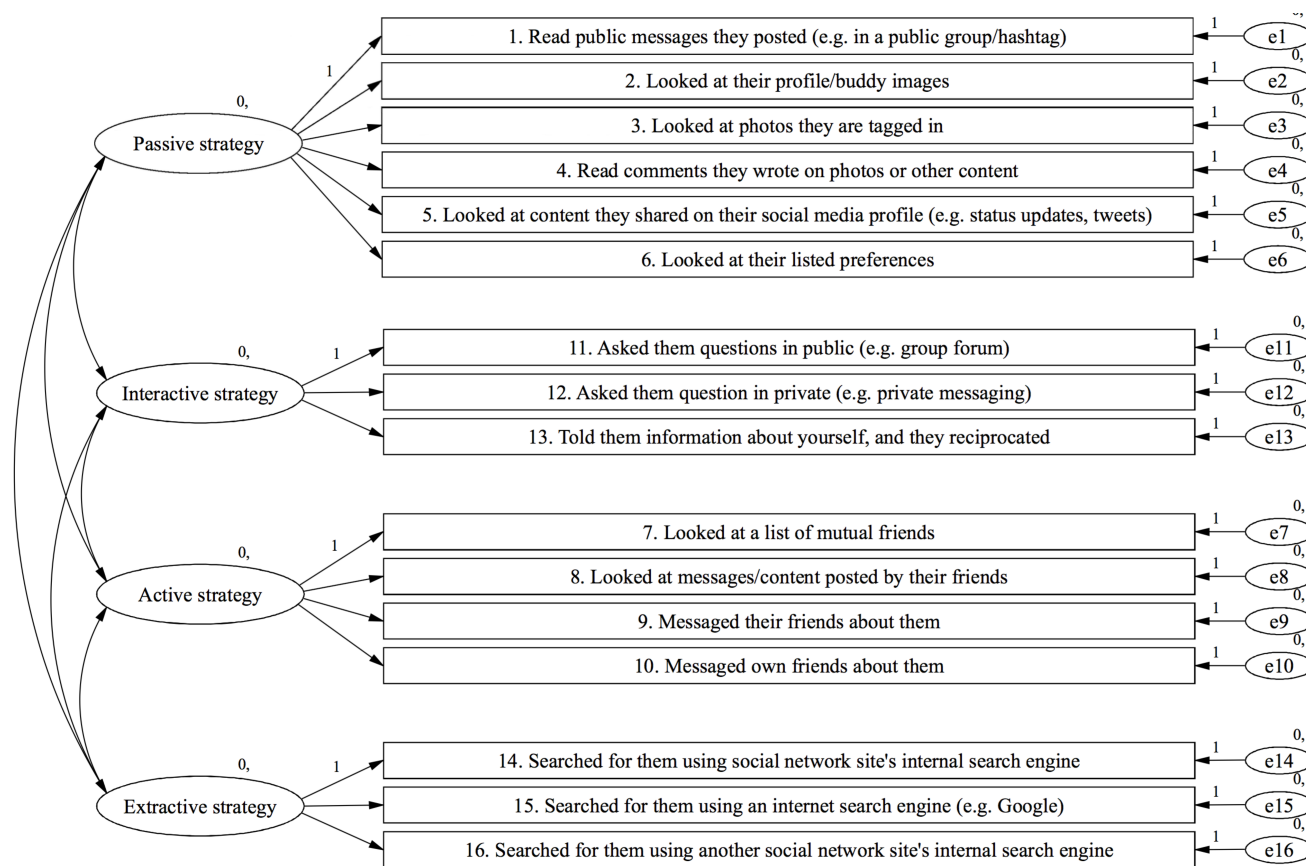


Figure 8: Visual diagram of Model 1, representing the original model suggested by Berger (1979) and Ramirez, Walther, Burgoon and Sunnafrank (2002).

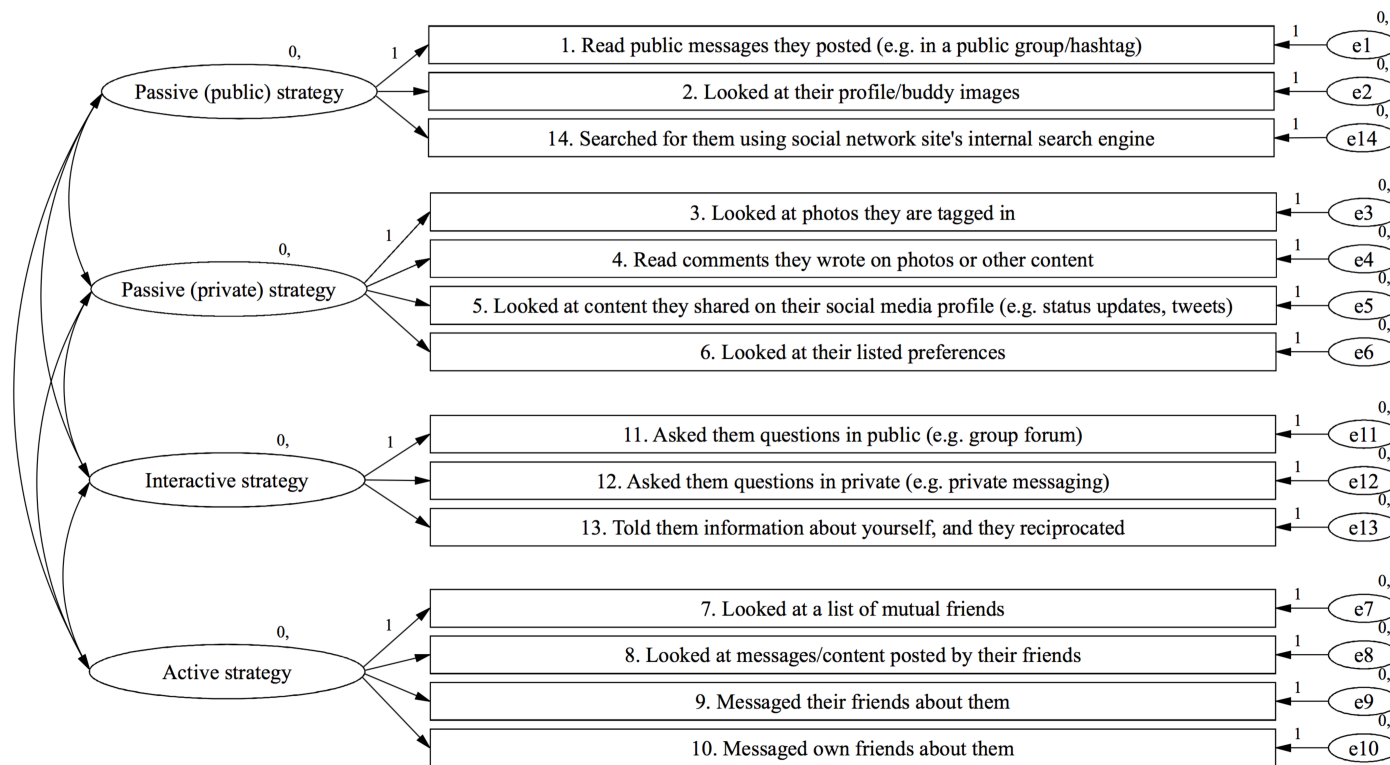


Figure 9: Visual diagram of the four-strategy Model 2. The model divided between private and public passive strategies but retained the interactive and active strategies from Berger's (1979) and Ramirez, Walther, Burgoon and Sunnafrank's (2002) models.

Both the original and refined models produced a good fit in each of the experimental conditions as indicated in Table 13. A good, acceptable model fit was indicated by the *RMSEA* statistic being lower than .05 (Browne & Cudeck, 1993) and the *CFI* statistic being greater than .95 (Hu & Bentler, 1999). A poor fit would have been indicated by the *RMSEA* statistic being higher than 1.00 (Browne & Cudeck, 1993).

Compared to Berger and Ramirez et al.'s original model, the refined model dividing the passive strategy into public and private versions produced a better description of how students got to know a variety of social targets at their university on social network sites in the weeks prior to starting university. First, the chi-square value for Model 1 was significantly smaller than the Model 2 for each of the experimental conditions (Merkle, You & Preacher, 2014; Steiger, Shapiro & Browne, 1985; Table 12). Second, the CFI metric for the Model 1 was larger than Model 2 with the difference being greater than .02 for most of the experimental conditions (Cheung & Rensvold, 2002; Table 13). Third, the AIC metric for original model was lower than Model 2 for each of the experimental conditions although the research literature has failed to provide a strict cut off point for that metric (Burnham & Anderson, 2002; Hooper, Coughlan & Mullen, 2008).

Together, the three statistical metrics provided strong evidence that the refined model distinguishing private and public passive strategies provided a significantly improved description of how students get to know a group of people at their university compared to Berger's (1979) and Ramirez et al.'s (2002) model.



Table 12

*Comparison of Chi-square tests between original and refined models across the five social target conditions.*

Social target	Original model		Refined model		Differences between		
	(Model 1)		(Model 2)		the two models		
	$\chi^2$	<i>df</i>	$\chi^2$	<i>df</i>	$\Delta\chi^2$	$\Delta df$	<i>p</i>
Group of housemates	153.75	71	107.75	98	46.00	27	.013 *
Group of coursemates	141.84	71	92.60	98	49.24	27	.006 **
General group	196.51	71	159.02	98	37.49	27	.086
Specific housemate	180.88	71	137.95	98	42.93	27	.027 *
Specific coursemate	160.00	71	118.55	98	41.46	27	.037 *

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 13

*Goodness of fit tests for each of the models across the five social target conditions.*

Social target	$\chi^2$ goodness of fit test				Other goodness of fit metrics		
	$\chi^2$	<i>df</i>	<i>p</i>		<i>RMSEA</i>	<i>CFI</i>	<i>AIC</i>
<i>Original model (Model 1, shown in Figure 8)</i>							
Group of housemates	153.75	98	.070		0.08	0.93	3629.97
Group of coursemates	141.84	98	.003	**	0.08	0.93	3370.85
General group	196.51	98	.000	***	0.07	0.93	6933.88
Specific housemate	180.88	98	.000	***	0.08	0.90	3448.31
Specific coursemate	160.00	98	.000	***	0.08	0.81	3202.16
<i>Refined model (Model 2, shown in Figure 9)</i>							
Group of housemates	107.75	71	.003	**	0.07	0.95	3339.84
Group of coursemates	92.60	71	.044	*	0.06	0.95	3123.51
General group	159.02	71	.000	***	0.07	0.93	6409.45
Specific housemate	137.95	71	.000	***	0.07	0.91	3370.58
Specific coursemate	118.55	71	.000	***	0.07	0.84	3152.26
* <i>p</i> <.05, ** <i>p</i> <.01, *** <i>p</i> <.001							

Further analysis indicated that the refined model was similar across the five social targets about whom students in the study had gotten to know. Per Schmitt and Kuljanin (2008), the model structure was assessed for measurement and structural invariance.

Assessing measurement invariance involved verifying whether the alignment of encounters to strategies was consistent across the five social targets (Meredith, 1993). Failure of the encounter to align to strategies consistently across the social targets would indicate that students used radically different methods when getting to know some social targets and that a single model would be insufficient for comparing between the targets (Vandenburg & Lance, 2000). Per the recommended procedures for assessing measurement invariance, an Omnibus Chi-square test examined whether the factor loadings within the refined four-strategy model were consistent across the five social targets (Schmitt & Kuljanin, 2008; Vandenburg & Lance, 2000). The Omnibus test did not reach statistical significance indicating that alignment of encounters to strategies were consistent across the social targets (Omnibus  $\chi^2_{(56)}=58.33$ ,  $p=.389$ ; Byrne, Shavelson & Muthén, 1989).

Two additional tests examined whether the model demonstrated structural invariance. Structural invariance refers to the extent that strategies are consistently related to one another and distributed across the social targets (Sass & Schmitt, 2013). Structural invariance focuses on the strategies in relation to other strategies whereas measurement invariance focuses on the alignment of encounters to the strategies. Per Schmitt and Kuljanin (2008), structural invariance was assessed using two approaches. First, the equality of covariances was assessed to identify whether the pattern of correlations between the strategies was consistent across the social targets. Second, the equality of variances was assessed to identify whether students' usage of the strategies was consistent across the social targets.

Based on Schmitt and Kuljanin (2008), a Chi-square test compared whether the overall model fit for the four-strategy model significantly changed when the covariances for the strategies were constrained to equality. Constraining to equality was implemented using the MPlus statistical package and involved setting the covariances for each strategy to be identical across the social targets (Gregorich, 2006; Millsap & Olivera-Aguilar, 2012; Steenkamp & Baumgartner, 1998). The model fit when constraining covariances to equality did not significantly differ from the model when the covariances freely varied which indicated that the pattern of correlations between the strategies was consistent across the social targets ( $\chi^2_{(25)}=37.40$ ,  $p=.053$ ; Byrne, Shavelson & Muthén, 1989; Steenkamp & Baumgartner, 1998)

A Chi-square test also compared whether the model fit improved when the variances for the strategies were constrained to equality (Schmitt & Kuljanin, 2008). There was a statistically significant difference between a model constraining the variances for each of the strategies across the social targets and a model where the variances were unrestricted by the MPlus statistical software, Omnibus  $\chi^2_{(5)}=12.91$ ,  $p=.024$ . The statistically significant test indicated that students' use of the strategies was inconsistent across the social targets.

Visual inspection of the usage frequencies isolated the inconsistency to the active strategy. More students rated that they had 'never' used the four encounters aligned to the active strategy when getting to know a specific coursemate (76.4%; 264 ratings across all four encounters) or a specific housemate (72.1%; 258 ratings) compared to a group of coursemates (56.8%, 204 ratings), a group of housemates (54.7%, 196 ratings) or the general type of people at their university (49.1%, 176 ratings). The active strategy involved a

student proactively eliciting information about others without any direct interaction with them (Baxter & Wilmot, 1984). For social network sites, an example of an encounter aligned to the active strategy involves a student identifying or messaging a mutual friend with a new coursemate or group of coursemates. The inconsistency in the strategy use when getting to know a group or an individual may be due to the greater likelihood of having a mutual friend with at least a single member of a large group than with a specific individual in isolation.

As the variances for the active strategy were inconsistent across the social targets, the model demonstrated only partial structural invariance. The failure to demonstrate full structural invariance was not considered detrimental however because the partial structural invariance could be explained theoretically (Milfont & Fischer, 2015), full structural invariance is unlikely within applied scenarios (Byrne, Shavelson & Muthén, 1989), the model otherwise demonstrated measurement and structure invariance, and the effect of partial structure invariance is limited when using the unparcelled approach to path analysis adopted in this study (Yoo, 2002). No modifications were made to the model because doing so would likely have had negligible impact on the accuracy of the inferences made from the model (Schmitt & Kuljanin 2008; Vandenburg & Lance, 2000).

*Research question 2: Does the relationship between the strategies that students use to get to know others on social network sites and their confidence in their impressions depend on whether they are getting to know specific individual or a group of people?*

A Structural Equation Model estimated the statistical relationships between the four strategies that students used to find out about individuals or groups at their university, how confident those students were in their impressions about those people (Research question 2), and the intensity of those students' academic and social worries about university (Research question 3). Five versions of the model were created, one for each of the social targets with whom the students had encounters and had formed impressions. The relationships in the model were estimated separately for the five social targets. The model also controlled for the theoretical influence of trait anxiety upon a person's worries (Belzer, D'Zurilla & Mayedu-Olivares, 2002; Reidy, 2004). As in Chapter 4, an unparcelled approach was adopted using maximum likelihood estimation and bootstrapping ( $n=10,000$  samples).

The model containing all five social targets provided an acceptable, moderate fit to the data and is visualised in Figure 10,  $\chi^2_{(76)}=2475.13$ ,  $p<.001$ ; RMSEA=.085 (95% CI: .084 to .086); CFI=.80, AIC=2493.01. However, the model contained negative error variance as indicated by several of the variables representing measurement error having variances lower than zero. Second, the standard errors were abnormally high for many of the statistical relationships (SE=999.00). Both negative error variances and the abnormally high standard errors evident for all five of the social targets were indicative of the model being misspecified and requiring amendment (Hayes, 2013).

Statistical evidence indicated that the active strategy was problematic. Two of the four encounters aligned to the active strategy failed to load significantly onto that strategy ( $r < .20$ ,  $p > .05$ ). The statistically non-significant loadings indicated that those two encounters were not representative of an active strategy in the current study, despite previously being representative of the active strategy in the confirmatory factor analysis created for Research question 1 and in the equivalent research question for the study in Chapter 4. Removing the two encounters failed to solve the model being misspecified, however (Figure 11). The model still provided a moderate fit ( $RMSEA = 0.80$ ) but the negative error variances and abnormally high standard errors persisted.

Only after removing the active strategy from the model did the model fit improve (Figure 12). Removing the active strategy led to a significantly better fitting model than when the active strategy was included. The improved model fit was indicated by the Chi-square value from the goodness of fit test being significantly lower ( $\chi^2 = 66.40$ ,  $p = .034$ ) and the AIC metric being lower (-300.40) in the model without the active strategy compared to the model including the strategy. Removing the active strategy eliminated the negative error variances and the abnormally high standard errors.

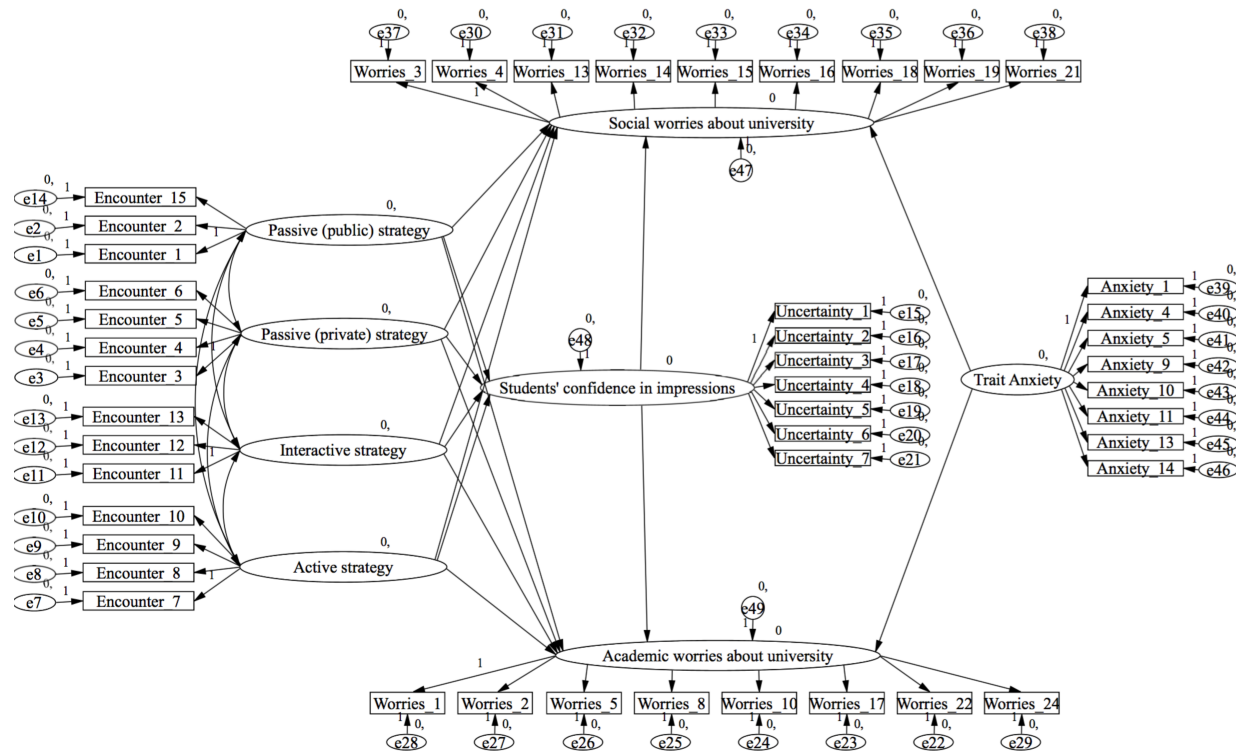


Figure 10: Path analysis model whereby the four strategies identified in Model 2 predicted how confident students were about their impressions, and the intensity of their worries about university.



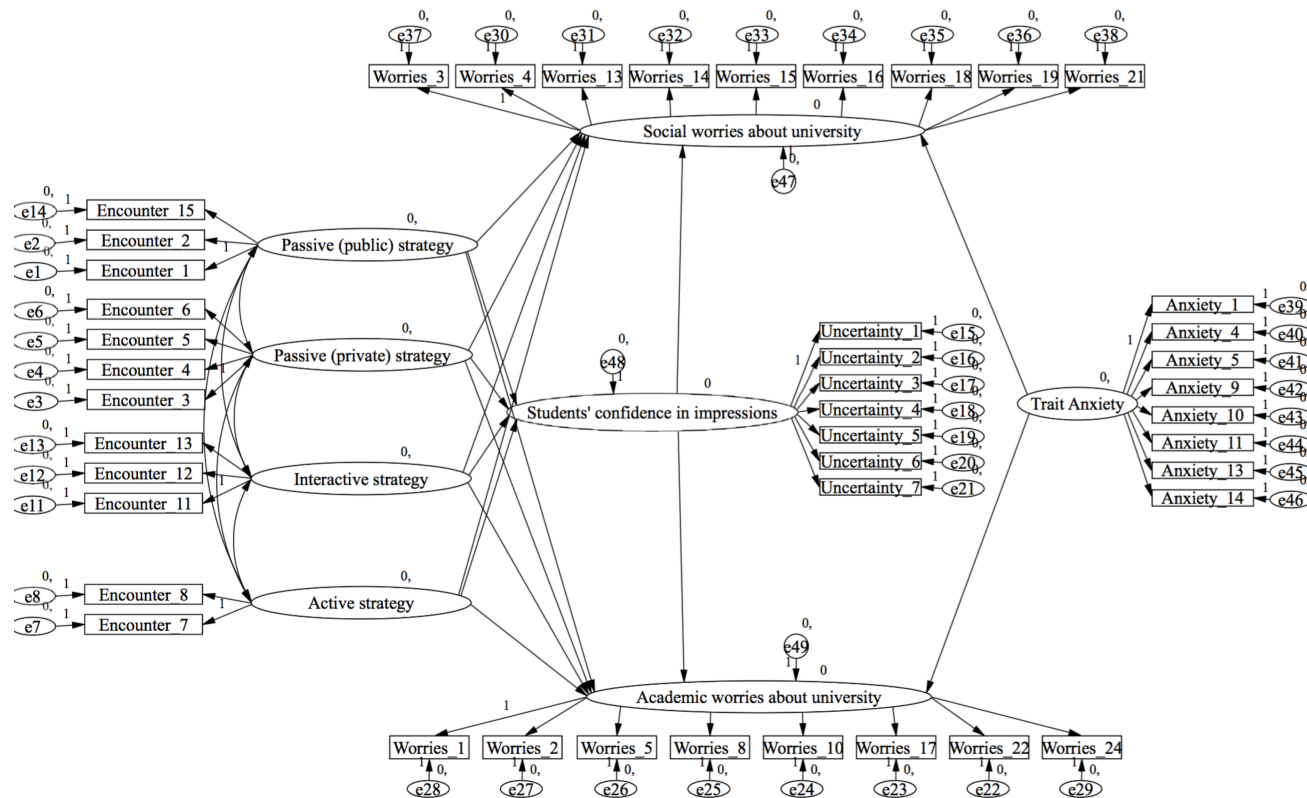


Figure 11: Path analysis model whereby an amended version of four strategies from Model 2 predicted how confident students were about their impressions, and the intensity of their worries about university. The active strategy was amended by removing two encounters.

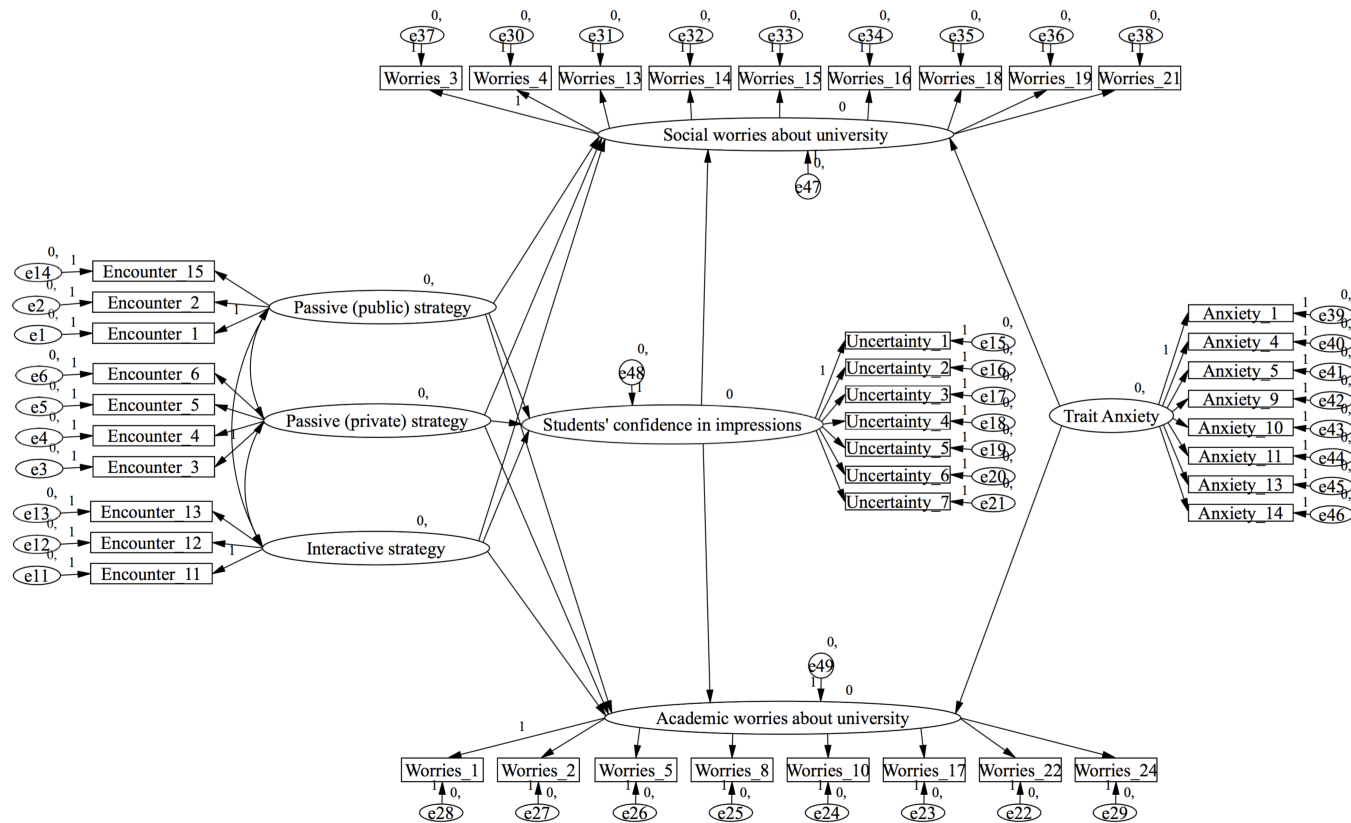


Figure 12: Path analysis model whereby the private passive, public passive, and interactive strategies from Model 2 predicted how confident students were about their impressions, and the intensity of their worries about university. The active strategy was removed.

The decision to remove the active strategy entirely was justified both theoretically and using evidence from previous studies. The poor fit of the active strategy to the data was likely due to very few students having used the strategy. Many encounters aligned to the active strategy required mutual friends. However, many students would not have had mutual friends with people at their university due to a large geographical distance from each another prior to starting university. Consequently, some students would not have had the opportunity for many of the encounters aligned to the active strategy. The explanation was validated because most students used encounters aligned to the active strategy either never (64.1% or 1113 instances across the four encounters) or very little (12.5% or 217 instances).

Furthermore, the active strategy might not have been useful when considering how confident students were in their impressions of others. The questionnaire study in Chapter 4 and researchers examining social network sites (e.g. Antheunis, Valkenburg & Peter, 2010) and other online environments (Gibbs, Ellison & Lai, 2011) demonstrated that an active strategy failed predict how confident people were in their impressions of others. Consequently, there was theoretical and empirical justification for removing the active strategy from the model.

Having removed the active strategy, the model had only three strategies remaining depicted in Figure 11. Those strategies were the public passive, private passive and the interactive strategies. The model warranted no further amendments after inspection of the alignment of encounters to strategies which were all statistically significant. Consequently, the model containing only three strategies was used to examine research questions 2 and 3.

By analysing the regression weights from the model depicted in Figure 11, it was possible to answer research question 2. The regression weights indicated that the relationship between the strategies that students used to get to know others and how confident those students were about the resulting impressions that they formed depended on the social target about whom students formed impressions.

Instead of using on  $p$ -values, the statistical significance of a relationship was determined using bootstrapped percentile confidence intervals. Confidence intervals was preferred due to being less biased and more statistically powerful than alternative approaches to path analysis involving multiple experimental conditions, particularly when the data is not normally distributed as was the case in this study (Hayes, 2013; Hayes & Scharkow, 2013). Per Hayes (2013; 2015), a relationship was considered statistically significant when the confidence interval did not contain zero insofar that the range of the confidence interval was either entirely above zero (i.e. +1.00 to +10.00) or entirely below zero (i.e. -10.00 to -1.00). Comparatively, a relationship failed to meet statistical significance when the confidence interval crossed zero (i.e. -3.00 to +3.00, -1.00 to +9.00; Hayes & Scharkow, 2013). The confidence intervals for social target and strategy are provided in Table 14.

#### Private passive strategy

The relationship between the private passive strategy and how confident students were in their impressions of others depended on the nature of the affiliation with the social target about whom students formed impressions. The nature of the affiliation refers to whether students formed impressions about a coursemate or a

housemate irrespective of the social target being a group (e.g. a specific housemate) or an individual (e.g. a group of housemates).

The more frequently that students used a private passive strategy when getting to know a specific group of coursemates, then the *more* confident they were in their impressions of that specific group ( $\beta=0.36$ ,  $B=0.49$ ,  $S.E.=0.14$ ,  $t=3.51$ ,  $p<.001$ , 95% *CI*: 0.18 to 0.24; Table 14). The same relationship was present for students' impressions of a broader, more general group of people at their university ( $\beta=3.96$ ,  $B=5.29$ ,  $S.E.=1.62$ ,  $t=3.27$ ,  $p<.001$ , 95% *CI*: 2.46 to 6.56).

Table 14

*Relationships between the strategies that students use and how confident they were in their impressions.*

						95% Confidence		
	$\beta$	$B$	$SE$	$t$	$p$	Intervals		
						Lower	Upper	
<i>Group of housemates</i>								
Private passive	-1.19	-1.29	2.52	-0.51	.608	-6.88	-0.80	*
Public passive	-1.32	-4.85	10.85	-0.45	.655	-2.12	-29.19	*
Interactive	0.38	0.86	0.30	2.90	.004	0.36	1.15	*
<i>Group of coursemates</i>								
Private passive	0.36	0.49	0.14	3.51	.000	0.18	0.24	*
Public passive	-0.29	-1.69	0.51	-3.28	.001	-0.74	-0.25	*
Interactive	0.18	0.44	0.47	0.94	.345	0.18	0.45	*
<i>General group of people at university</i>								
Private passive	3.96	5.29	1.62	3.27	.001	2.46	6.56	*
Public passive	-3.66	-19.07	5.65	-3.37	.001	-22.31	-10.78	*
Interactive	-0.27	-0.68	0.73	-0.92	.357	-1.58	-0.35	*
<i>Specific housemate</i>								
Private passive	-2.00	-3.42	1.76	-1.95	.052	-5.60	-2.47	*
Public passive	-1.78	-10.09	3.54	2.85	.004	-2.85	-11.97	*
Interactive	0.82	2.76	1.03	2.67	.008	2.57	3.09	*

*Specific coursemate*

Private passive	0.58	1.11	0.88	1.26	.207	-1.03	1.39	
Public passive	-0.68	-5.20	2.92	-1.78	.075	-8.10	-5.17	*
Interactive	0.16	0.60	0.34	1.75	.080	0.33	0.89	*

---

\* Relationship considered statistically significant because the confidence intervals did not cross zero.

The strength of the relationship significantly differed between impressions formed about a broad general group compared to about a specific group of coursemates (Table 15). Bootstrapped, bias-corrected confidence intervals were used to assess whether the regression coefficients significantly differed, as recommended by Hayes and Preacher (2013). Bias-corrected bootstrapped 99% confidence intervals were chosen over various alternatives including the causal steps approach (Baron & Kenny, 1986) and *p*-value statistical tests of differences (e.g. Byrne, 2010; Hayes, 2013; Hayes & Preacher, 2013; Paternoster, Brame, Mazerolle & Piquero, 1998). The alternative approaches are less powerful and more prone to error compared to bias-corrected bootstrapped confidence intervals approach (Hayes &, 2013). A Bonferroni-style adjustment was made when calculating confidence levels to account for the inflated chance of error when detecting relationships from multiple comparisons.

Table 15

*99% bias-corrected bootstrapped confident interval comparisons between the strategies that students use and how confident they were in their impressions.*

	Reference target			
Comparison target	Housemates (group)	Coursemates (group)	General group	Housemates (individual)
<i>Private passive strategy</i>				
Coursemates (group)	-0.51 to -0.15*			
General group	0.18 to 0.13*	-0.29 to 0.11		
Housemates (individual)	-0.32 to 0.01	-0.48 to -0.10*	-0.45 to -0.07*	
Coursemates (individual)	0.33 to 0.37*	0.37 to 0.44*	-0.14 to 0.61	
<i>Public passive strategy</i>				
Coursemates (group)	-0.07 to 0.04			
General group	-0.01 to 0.12	-0.01 to 0.15		



Housemates (individual)	-0.01 to 0.13	-0.10 to 0.25	-0.22 to 0.01	
Coursemates (individual)	-0.14 to 0.23	-0.06 to 0.28	-0.01 to 0.27	-0.12 to 0.22
<i>Interactive strategy</i>				
Coursemates (group)	-0.48 to -0.01*			
General group	0.04 to 0.13*	0.19 to 0.31*		
Housemates (individual)	-0.50 to -0.19*	-0.49 to -0.11*	-0.82 to -0.01*	
Coursemates (individual)	-0.46 to -0.08*	-0.71 to -0.61*	-0.87 to -0.70*	-0.33 to -0.10*

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\* Relationship considered statistically significant because the confidence intervals did not cross zero

The statistical relationship between students' use of the private passive strategy and how confident they were about their impressions differed based on the affiliation that students had with the social target, namely whether the target were housemate(s) or coursemate(s). In contrast to getting to know specific coursemates, the more frequently that students used a private passive strategy when getting to know a specific group of *housemates* then the *less* confident they were in their impressions of that specific group ( $\beta=-1.19$ ,  $B=-1.29$ ,  $S.E.=2.52$ ,  $t=-0.51$ ,  $p=.608$ , 95% *CI*: -6.88 to -0.80; Table 14). The same was apparent for students' impressions of a specific housemate ( $\beta=-2.00$ ,  $B=-3.42$ ,  $S.E.=1.76$ ,  $t=-1.95$ ,  $p=.052$ , 95% *CI*: -5.6 to -2.47). There was no statistically significant difference in the strength of the relationship between the housemate social targets (Table 15). There was a statistically significant difference in the strength of the relationships between both housemate social targets, the group of coursemates and the general type of people at their university.

In contrast to impressions about groups of housemates and coursemates, however, the frequency that students used a private passive strategy when getting to know a specific individual coursemate failed to predict how confident those students were in their impressions of that coursemate ( $\beta=0.58$ ,  $B=1.11$ ,  $S.E.=0.88$ ,  $t=1.26$ ,  $p=.207$ , 95% *CI*: -1.03 to 1.39; Table 14). There was no statistically significant difference in the strength of the relationship for the specific coursemate compared to the other four social targets (Table 15).

### Public passive strategy

The relationship between the public passive strategy and how confident students were in their impressions of others was not dependent on whether the students' impression concerned a specific individual or a group of people.

The more frequently that students used a public passive strategy when getting to know a specific group of coursemates, then the *less* confident they were in their impressions of that group ( $\beta=-0.29$ ,  $B=-1.69$ ,  $S.E.=0.51$ ,  $t=-3.28$ ,  $p<.001$ , 95%  $CI$ : -0.74 to -0.25; Table 14). The same statistical relationships were present for students' impressions about a specific individual coursemate ( $\beta=-0.68$ ,  $B=-5.20$ ,  $S.E.=2.92$ ,  $t=-1.78$ ,  $p=.075$ , 95%  $CI$ : -8.10 to -5.17), a specific individual housemate ( $\beta=-1.32$ ,  $B=-4.85$ ,  $S.E.=10.85$ ,  $t=0.45$ ,  $p=.655$ , 95%  $CI$ : -2.12 to -29.19), a group of housemates ( $\beta=-1.78$ ,  $B=-10.09$ ,  $S.E.=3.54$ ,  $t=2.85$ ,  $p=.004$ , 95%  $CI$ : -2.85 to -11.97), and a broader, more general group of people at their university ( $\beta=-3.66$ ,  $B=-19.07$ ,  $S.E.=5.65$ ,  $t=-3.37$ ,  $p<.001$ , 95%  $CI$ : -22.31 to -10.78). There were no statistically significant differences between the strength of the relationship amongst impressions about the five social targets (Table 15).

### Interactive strategy

The relationship between the interactive strategy and how confident students were in their impressions of others was not strictly dependent on whether impressions were about a group or an individual. Instead, the statistical relationship dependent on whether the impression was about a coherent social target (e.g. a specific individual or a specific group of people) or a less coherent social target (e.g. a broad, loosely knit group of people).

The more frequently that students used an interactive strategy when getting to know a broad, general group of people at their university then the *less* confident they were in their impressions of that broad group ( $\beta=-0.27$ ,  $B=-0.68$ ,  $S.E.=0.73$ ,  $t=-0.92$ ,  $p=.357$ , 95%  $CI$ : -1.58 to -0.35; Table 14).

In contrast, the more frequently that students used an interactive strategy when getting to know a *specific* group of coursemates then the *more* confident they were in their impressions of that specific group ( $\beta=0.18$ ,  $B=0.44$ ,  $S.E.=0.47$ ,  $t=0.94$ ,  $p=.345$ , 95%  $CI$ : 0.18 to 0.45). The same statistical relationship was apparent for students' impressions about other more coherent social targets including a group of housemates ( $\beta=0.38$ ,  $B=0.86$ ,  $S.E.=0.30$ ,  $t=2.90$ ,  $p=.004$ , 95%  $CI$ : 0.36 to 1.15), a specific individual coursemate ( $\beta=0.16$ ,  $B=0.60$ ,  $S.E.=0.34$ ,  $t=1.75$ ,  $p=.080$ , 95%  $CI$ : 0.33 to 0.89) and a specific individual housemate ( $\beta=0.82$ ,  $B=2.76$ ,  $S.E.=1.03$ ,  $t=2.67$ ,  $p=.008$ , 95%  $CI$ : 2.57 to 3.09). There was a statistically significant difference between the relationship involving the general type of people at the students' university and the rest of the social targets (Table 15).

In summary, the type of social target influenced the link between students' use of the interactive strategy on social network sites and their confidence in their impressions. The influence of the social target extended beyond whether the target was a group of people or a specific individual, however, and instead to the coherence of the social target, namely whether the target closely knit or not.

*Research question 3: Can the relationship between the strategies that students use to get to know others on social network sites on social network sites and their worries about university be explained by how confident the students are in their impressions about others? Does the relationship depend on whether the students get to know a specific individual or a group of people?*

The structural equation model depicted in Figure 11 also estimated the relationships between the strategies that students used to get to know different social targets and how worried they were about the academic and social aspects of their future university experience. Two estimates of the relationship between the strategies and worries were calculated from the model: one for an indirect relationship between the strategies and worries, and one for a direct relationship between the strategies and worries (Bollen, 1987; Mathieu & Taylor, 2006). This type of analysis is commonly referred to as mediation analysis or process analysis (Baron & Kenny, 1986; Hayes, 2013). The indirect estimate calculated the relationship between strategies and worries that could be explained by how confident students were in their impressions. The direct estimate calculated the relationship that remained unexplained by how confident students were in their impressions. Of greater interest for this study and research question was the indirect effect as this statistical relationship indicated whether students' confidence in impressions played any role in the link between encounters and worries. The indirect relationships involving academic and social worries are shown in Tables 15 and 16, respectively.

Table 16

*Relationship between the strategies that students use to get to know others and how worried they were about the academic aspects of university, attributable to how confident students were in their impressions of a social target.*

						95% Confidence	
						Interval	
Strategy	$\beta$	$B$	$S.E.$	$t$	$p$	Lower	Upper
<i>Group of housemates</i>							
Private passive	0.06	0.01	0.02	0.51	.607	-0.03	0.03
Public passive	-0.06	-0.04	0.07	-0.49	.624	-0.12	0.02
Interactive	-0.02	-0.01	0.01	-0.59	.553	-0.01	0.02
<i>Group of coursemates</i>							
Private passive	-0.02	0.00	0.01	-1.07	.285	-0.01	0.00 *
Public passive	0.01	0.01	0.01	3.67	.000	0.00	0.00 *
Interactive	-0.01	0.00	0.01	-0.33	.742	0.00	0.00 *
<i>General group of people at university</i>							
Private passive	-0.43	-0.07	0.06	-1.33	.184	-0.16	-0.03
Public passive	0.40	0.26	0.19	1.41	.158	0.05	0.53 *
Interactive	0.03	0.01	0.01	1.42	.156	0.00	0.00 *
<i>Specific housemate</i>							
Private passive	-0.06	-0.01	0.02	-0.46	.648	-0.02	0.00
Public passive	0.05	0.02	0.05	0.53	.597	-0.02	0.06
Interactive	0.02	0.01	0.01	0.57	.570	-0.01	0.02
<i>Specific coursemate</i>							
Private passive	0.10	0.02	0.02	1.05	.293	0.00	0.02

Public passive	-0.12	-0.09	0.08	-1.18	.239	-0.17	0.00	*
Interactive	0.03	0.01	0.01	1.03	.304	0.00	0.02	

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\* Relationship considered statistically significant because the confidence intervals did not cross zero

Table 17

*Relationship between the strategies that students use to get to know others and how worried they were about the social aspects of university, attributable to how confident students were in their impressions of a social target.*

						95% Confidence		
						Interval		
Strategy	$\beta$	$B$	$S.E.$	$t$	$p$	Lower	Upper	
<i>Group of housemates</i>								
Private passive	0.13	0.12	0.41	0.30	.761	0.07	1.05	*
Public passive	-0.15	-0.46	1.74	-0.27	.790	-4.46	-0.22	*
Interactive	-0.04	-0.08	0.04	-2.16	.031	-0.10	-0.03	*
<i>Group of coursemates</i>								
Private passive	-0.06	-0.06	0.02	-2.77	.006	-0.05	-0.02	*
Public passive	0.05	0.21	0.08	2.76	.006	0.01	0.09	*
Interactive	-0.03	-0.06	0.06	-0.91	.365	-0.07	-0.05	*
<i>General group of people at university</i>								
Private passive	-1.21	-1.17	0.39	-3.02	.003	-1.48	-0.70	*
Public passive	1.12	4.23	1.35	3.14	.002	1.67	4.92	*
Interactive	0.08	0.15	0.15	0.98	.330	0.03	0.32	*
<i>Specific housemate</i>								
Private passive	0.61	0.54	0.21	2.61	.009	0.43	0.66	*
Public passive	-0.54	-1.60	0.29	-5.49	.000	-1.42	-1.30	*
Interactive	-0.25	-0.44	0.14	-3.18	.001	-0.45	-0.37	*
<i>Specific coursemate</i>								
Private passive	-0.04	-0.04	0.09	-0.41	.680	-0.09	0.14	



Public passive	0.04	0.16	0.25	0.67	.505	-0.11	0.40
Interactive	-0.01	-0.02	0.04	-0.46	.647	-0.06	0.00

\* Relationship considered statistically significant because the confidence intervals did not cross zero.

Analysis of the indirect effects indicated various statistical relationships between the strategies and the extent to which students were worried about the social and academic aspects of their university experience. Those relationships were somewhat dependent on the social target that students formed impressions about, and those differences were partially explained by how confident the students were in their impressions. The relationships involving the three strategies that students used to get to know others are considered in turn below.

#### Private passive strategy

The relationship between a private passive strategy and students' worries about university depended on the social target and the type of worries. When their worries were suited to the social target about whom they had formed impressions, there were several statistical relationships between students' use of the private passive strategy and their worries about university. The more frequently that students used a private passive strategy when getting to know a group of housemates ( $\beta=0.61$ ,  $B=0.54$ ,  $S.E.=0.21$ ,  $t=2.61$ ,  $p=.009$ , 95% CI: 0.43 to 0.66) or a specific individual housemate ( $\beta=0.13$ ,  $B=0.12$ ,  $S.E.=0.41$ ,  $t=0.30$ ,  $p=.761$ , 95% CI: 0.07 to 1.05) then the more intense their social worries about university. The same relationship was also apparent for academic worries when the students formed impressions about a group of coursemates ( $\beta=0.02$ ,  $B=0.01$ ,

$S.E.=0.01$ ,  $t=1.07$ ,  $p=.285$ , 95%  $CI$ : 0.01 to -0.01) and a specific individual coursemate ( $\beta=0.01$ ,  $B=0.02$ ,  $S.E.=0.02$ ,  $t=1.05$ ,  $p=.293$ , 95%  $CI$ : 0.01 to 0.02).

In contrast, the more frequently that students used a private passive strategy when getting to know a broader and more general group of people at their university then the less intense their social worries ( $\beta=-1.21$ ,  $B=-1.17$ ,  $S.E.=0.39$ ,  $t=-3.02$ ,  $p=.003$ , 95%  $CI$ : -1.48 to -0.70) and academic worries ( $\beta=-0.06$ ,  $B=-0.01$ ,  $S.E.=0.02$ ,  $t=-0.46$ ,  $p=.648$ , 95%  $CI$ : -0.02 to 0.00) about university.

The relationships emerged even when their worries were not suited to the social target about whom they had formed impressions. The more frequently that students used a private passive strategy when getting to know a group of coursemates then the less intense their social worries about university ( $\beta=-0.06$ ,  $B=-0.06$ ,  $S.E.=0.02$ ,  $t=-2.77$ ,  $p=.006$ , 95%  $CI$ : -0.05 to -0.02). Similarly, the more frequently that students used a private passive strategy when getting to know a group of housemates then the less intense their social worries about university ( $\beta=-0.06$ ,  $B=-0.01$ ,  $S.E.=0.02$ ,  $t=-0.46$ ,  $p=.648$ , 95%  $CI$ : -0.02 to -0.01).

#### Public passive strategy

The relationship between a public passive strategy and students' worries about university depended on the social target and the type of worries. When their worries were unsuited to the social target about whom they had formed impressions, there were very few statistical relationships between students' use of the public passive strategy and their worries about university. The frequency that students used a public passive strategy when getting to know a group of housemates ( $\beta=-0.06$ ,  $B=-0.04$ ,  $S.E.=0.07$ ,  $t=-0.49$ ,  $p=.624$ , 95%  $CI$ : -0.12 to

0.02; Table 16) or a specific housemate ( $\beta=0.05$ ,  $B=0.02$ ,  $S.E.=0.05$ ,  $t=0.53$ ,  $p=.597$ , 95% *CI*: -0.02 to 0.06) failed to predict the intensity of their academic worries about university. Similarly, the frequency that students used a public passive strategy when getting to know a specific coursemate failed to predict the intensity of their social worries about university ( $\beta=0.04$ ,  $B=0.16$ ,  $S.E.=0.25$ ,  $t=0.67$ ,  $p=.505$ , 95% *CI*: -0.11 to 0.40; Table 17) although did predict when students were getting to know a group of coursemates. The more frequently that students used a public passive strategy when getting to know a group of coursemates then the more intense their social worries about university ( $\beta=0.05$ ,  $B=0.21$ ,  $S.E.=0.08$ ,  $t=2.76$ ,  $p=.006$ , 95% *CI*: 0.01 to 0.09).

When the students' worries about university were more appropriate to the social target, then the public passive strategy predicted the students' social and academic worries. For social worries, the more frequently that students used a public passive strategy when getting to know a group of housemates ( $\beta=-0.15$ ,  $B=-0.46$ ,  $S.E.=1.74$ ,  $t=-0.27$ ,  $p=.790$ , 95% *CI*: -4.46 to -0.22) or a specific individual housemate ( $\beta=-0.54$ ,  $B=-1.60$ ,  $S.E.=0.29$ ,  $t=-5.49$ ,  $p<.001$ , 95% *CI*: -1.42 to -1.30) then the less intense their social worries about university. That relationship was accounted for by how confident students were in their impressions about those groups of people. In contrast, the more frequently that students used a public passive strategy when getting to know a broader and more general group of people at their university then the more intense their social worries about university ( $\beta=1.12$ ,  $B=4.23$ ,  $S.E.=1.35$ ,  $t=3.14$ ,  $p=.002$ , 95% *CI*: 1.67 to 4.92).

For academic worries, the more frequently that students used a public passive strategy when getting to know a group of coursemates ( $\beta=0.01$ ,  $B=0.01$ ,

$S.E.=0.01$ ,  $t=3.67$ ,  $p<.001$ , 95% CI: 0.01 to 0.02) or a broader, more general group of people at their university ( $\beta=0.40$ ,  $B=0.26$ ,  $S.E.=0.19$ ,  $t=1.41$ ,  $p=.158$ , 95% CI: 0.05 to 0.53) then the more intense their academic worries about university. In contrast, the more frequently that students used a public passive strategy when getting to know a specific individual coursemate ( $\beta=-0.12$ ,  $B=-0.09$ ,  $S.E.=0.08$ ,  $t=-1.18$ ,  $p=.239$ , 95% CI: -0.17 to 0.00) then the less intense their academic worries about university.

### Interactive strategy

The relationship between an interactive strategy and students' worries about university also depended on the social target and the type of worries. The relationships between an interactive strategy and students' worries about university were consistent when students formed impressions about a specific group of people, such as a group of housemates or a group of coursemates. The more frequently that students used an interactive strategy when getting to know a group of housemates ( $\beta=-0.04$ ,  $B=-0.08$ ,  $S.E.=0.04$ ,  $t=-2.16$ ,  $p=.031$ , 95% CI: -0.10 to -0.03; Table 17) or a group of coursemates ( $\beta=-0.03$ ,  $B=-0.06$ ,  $S.E.=0.06$ ,  $t=-0.91$ ,  $p=.365$ , 95% CI: -0.07 to -0.05) then the less intense their social worries about university. That relationship was accounted for by how confident students were in their impressions about those groups of people. The same relationship was also apparent for academic worries when the students formed impressions about a group of housemates ( $\beta=-0.02$ ,  $B=-0.01$ ,  $S.E.=0.01$ ,  $t=-0.59$ ,  $p=.553$ , 95% CI: -0.01 to 0.02; Table 17) and a group of coursemates ( $\beta=-0.01$ ,  $B=0$ ,  $S.E.=0.01$ ,  $t=-0.33$ ,  $p=.742$ , 95% CI: -0.08 to -0.01).

The relationship was different when considering a broader and more disparate group of people, however. The more frequently that students used an interactive strategy when getting to know the general type of people at their university then the more intense their social worries ( $\beta=0.08$ ,  $B=0.15$ ,  $S.E.=0.15$ ,  $t=0.98$ ,  $p=.330$ , 95% *CI*: 0.03 to 0.32) and academic worries about university ( $\beta=0.03$ ,  $B=0.01$ ,  $S.E.=0.01$ ,  $t=1.42$ ,  $p=.156$ , 95% *CI*: 0.01 to 0.03).

The consistency between the types of worries broke down, however, when students formed impressions about a specific individual. The relationships between an interactive strategy and social worries were similar to the relationships involving impressions about a general group of people. The more frequently that students used an interactive strategy when getting to know a specific housemate ( $\beta=-0.25$ ,  $B=-0.44$ ,  $S.E.=0.14$ ,  $t=-3.18$ ,  $p=.001$ , 95% *CI*: -0.45 to -0.37) and specific coursemate ( $\beta=-0.01$ ,  $B=-0.02$ ,  $S.E.=0.04$ ,  $t=-0.46$ ,  $p=.647$ , 95% *CI*: -0.06 to 0.00) then the less intense their *social* worries about university.

For academic worries, however, the relationships were similar to when students formed impressions about a specific group of people such as a group of housemates or a group of coursemates. The more frequently that students used an interactive strategy when getting to know a specific coursemate then the more intense their *social* worries about university ( $\beta=0.03$ ,  $B=0.01$ ,  $S.E.=0.01$ ,  $t=1.03$ ,  $p=.304$ , 95% *CI*: 0.00 to 0.02). That relationship when students formed impressions about a specific housemate was in the same general direction but failed to meet the criterion for statistical significance ( $\beta=0.02$ ,  $B=0.01$ ,  $S.E.=0.01$ ,  $t=0.57$ ,  $p=.570$ , 95% *CI*: -0.01 to 0.02).

In summary, there was a relationship between the strategies students' to get to know others and their worries about university, and that relationship is influenced by the type of strategy used on social network sites and whether that impression was formed about a specific individual or a group of people.

## **Discussion**

This chapter reported an experimental study comparing whether impression formation dependent on whether students formed impressions about groups of people from their university, such as a group of their housemates or the general people at their future university, or a specific individual, such as a specific housemate. Analysis indicated both similarities and differences in how people form impressions about different social targets on social network sites.

### *Strategies that people use to when getting to know groups and individuals*

The current study demonstrated that students use four strategies when attempting to get to know others on social network sites, and that those strategies broadly applied irrespective of whether the students were getting to know a specific individual or a group of people. Those strategies were the public passive, private passive, interactive and active strategies. The same four strategies emerged in the questionnaire study in Chapter 4 where students were getting to know a general group of people at their university, confirming that the division between private and public passive strategies was not an artefact of the sample in that previous study and instead reflected how students get to know other. A private passive strategy involving encounters without direct interaction with a social target but instead viewing content that tends to be hidden from others behind privacy

settings (e.g. tagged photographs and status updates). A public passive strategy involves viewing content not protected by privacy settings and instead is publically available (e.g. profile images). The study also highlighted for the first time that students use the same four strategies to get to know groups of people irrespective of whether that group is broad in nature (e.g. the general type of people at a university) or more specific (e.g. a group of housemates; a group of housemates).

The public-private distinction was also apparent when getting to know a specific individual including a housemate or coursemate on social network sites. The extension to getting to know a specific individual is important because other researchers have reported that people use only a single passive strategy when getting to know a specific individual on social network sites (Antheunis, Valkenburg & Peter, 2010) and other environments (Berger, 1979; Gibbs, Ellison & Lai, 2010; Ramirez, Walther, Burgoon & Sunnafrank, 2002). Both this study and Antheunis et al. asked participants about their impressions of a specific individual on a social network sites therefore it is possible to reject a proposal made in Chapter 4. The private-public distinction does not reflect a difference in how people get to know individuals compared to a group of people. Instead, the distinction may be due to the increasingly widespread use of privacy settings for explicitly managing content that was not in earlier research on social network sites nor in other environments including dating websites, chatrooms and face-to-face meetings.

*Confidence in impressions about groups and individuals*

The findings indicated that students' confidence about their impressions is linked the *strategy*, or the conceptually similar types of encounter, that students used when getting to know others on social network sites in the weeks prior to starting university. The more that students used a private passive strategy, including encounters such as viewing tagged photographs and status updates of the general group of people at university or their coursemates as a group, the *more* confident they were about their impressions of that group. Comparatively, the more that students used a public passive strategy, including encounters such as viewing profile photographs or content posted in public groups pages, then the *less* confident they were about their impressions about those same groups of people. The finding replicated the difference between the public and private passive strategies identified for the same social target in the questionnaire study reported in Chapter 4.

When reporting the questionnaire study in Chapter 4, the explanation proposed for the differences was that students' confidence in their impressions were affected by an expectation that identity cues accessible to the public passive strategy were less verifiable and more prone to self-enhancement than identity cues accessible to the public passive strategy. The current study does not offer any additional support for the explanation. Furthermore, a theoretically plausible direction of causality has been proposed but the explanation remains tentative because the single-time research design does not preclude that the direction of causality is reversed, bidirectional or explained by an unmeasured third variable. Further research is required to disentangle the direction of causality which could take the form of a time-series study that compares how students' confidence in



their impressions predicts later changes in students' use of strategies for different social targets and how changes in students' use of strategies predicts later changes in how confident students are in their impressions of different social targets.

Unlike this study, Antheunis et al. reported that a single undivided passive strategy was not linked to how confident people were in their impressions of a specific individual. In this study, both private and public passive strategies were linked to how confident students were in their impressions of a specific individual. The difference between the studies can be explained by Antheunis et al. conflating privately and publically accessible content together unlike this study which distinguished between those two types of content. Previous research into impression formation involving encounters in online environments should be re-evaluated in the context of the recent uptake in the use of privacy settings in those environments.

Impression formation may not be solely linked to the *strategy* that students use when getting to know others on social network sites prior to starting university but also the *expected coherence of the social target* about whom they form their impression. Mirroring the questionnaire study in Chapter 4, students in the current study were *less* confident about their impressions about a general group of people from their university when more frequently using an interactive strategy to get to know them. In Chapter 4, an explanation was offered for this finding insofar that students using an interactive strategy could interact with each other outside the glare of their friends and family. Students could present more idealised, self-enhanced versions of themselves to each other without the misrepresentation being detected because strangers as they had never met before

and therefore did not have a frame of reference that friends and family. Students may have been aware of the likelihood of misrepresentation from others leading to lower confidence in their impressions.

However, the explanation proposed in Chapter 4 must be rejected given evidence from the current study. In the opposite direction to impressions about a general group of people, students were *more* confident about their impressions about a specific individual (e.g. a housemate or a coursemate) and a specific group of people (e.g. a group of housemates) when more frequently using an interactive strategy to get to know them. The explanation proposed in the questionnaire study must be rejected because the intended audience for the identity cues accessed by an interactive strategy did not change. Students who interacted with each other in group pages or private messaging were still strangers to one another irrespective of whether they were interacting with an individual or group of people at their university.

An alternative explanation for the difference between the two social targets is that identity cues involving social targets expected to be coherent are processed differently to those from targets expected to be less coherent (Hamilton & Sherman, 1996). The coherence of a social target refers to the extent that an individual or group, referred to as the social target, is expected to be a defined, unitary and singular entity (Hamilton & Sherman, 1996). Experimental research suggests that participants expect a specific individual (e.g. a stranger named John) to be more coherent and unitary than a specific group of people (e.g. the people working in John's department) who in turn are expected to be more coherent than a broad group of people (e.g. the people living in the same city as John; Plaks, Shafer & Shoda, 2003; Susskind, Maurer, Thakkar,

Hamilton & Sherman, 1999). Extrapolating the existing research, the students in the current study may have expected a specific individual (e.g. a specific coursemate) to be more coherent and unitary than a specific group of people (e.g. group of coursemates) who in turn were expected to be more coherent than a broad group of people (e.g. the general type of people at their university).

Hamilton and Sherman (1996) proposed that impressions about social targets who are expected to be coherent tend to be more specific and tailored than impressions about social targets for whom coherence is not expected. The differences are based on the rebalancing of individuating and categorising processes when forming the impressions about more coherent and less coherent targets. For less coherent social targets, people rely more on categorising which bases impressions on stereotypes that emerge from the available identity cues (Fiske, Lin & Neuberg, 1999). Consistency is not expected amongst less coherent social targets therefore identity cues that contradict those stereotypes are not attended toward ensuring that those impressions do not become more tailored and distinguishing from the otherwise broad generalisations made from stereotypes. For more coherent social targets, consistency is expected therefore people rely more on individuating which involves more specific and in-depth reconciliation of inconsistencies and nuances between identity cues (McConnell, Sherman & Hamilton, 1995).

Extrapolating Hamilton and Sherman's finding to the interactive strategy, the impressions that students formed about more coherent social targets including a specific individual (e.g. housemate) or specific group of people (e.g. group of coursemates) may have been more tailored and distinguishing by virtue of individuating than those impressions formed than those about a broader group

of people (e.g. the general type of people at their university). Those impressions would have emerged because forming impressions about the coherent targets (e.g. a housemate or group of housemates) would have been more reliant on individuating than impressions about a less coherent group (e.g. the general type of people at university) which instead would have been more reliant on categorising. The scale used to measure students' confidence about their impressions involved questions about their ability to predict the behaviour, attitudes, trait and motivations of the target about whom they formed an impression (Clatterbuck, 1979). The greater tailoring and distinctiveness in impressions formed from individuating may have resulted in students' higher confidence because the impressions contained more specific detail upon which to make predictions about the behaviour, attitudes, motivations of their housemates and coursemates at their university (Berger & Calabrese, 1975; Brewer, 1988). In contrast, the more general detail in impressions formed from categorising may have resulted in lower confidence because those impressions contained less distinctive information for making predictions.

The finding is mirrored by research suggesting that people are less confident about their impressions formed about less coherent social targets than about more coherent social targets. In an experimental study, Susskind et al. (1999) demonstrated that students were more confident about their impressions of a fictional coursemate or a fictional close-knit group of friends compared to impressions about a fictional general group of people at the same university. Similar findings have been reported by Castano, Sacchi and Gries (2003) and Smith, Faro and Burson (2013). Prior research, however, has only involved impressions formed face-to-face or after reading about others from textbooks or

newspaper reports. The current study is first to have extrapolated Hamilton and Sherman's theory to social network sites. However, none of the studies have explored how the distinctiveness of those impressions is linked to how confident people are in their impressions therefore future work is required to validate the proposed explanation.

Although the link between an *interactive* strategy and how confident students were about their impressions differed based on the social target, the contingency was not apparent for a *public passive* strategy. The more frequently that students used a public passive strategy such as viewing profile pictures or content posted in a public group, then the *less* confident the students were in their impressions irrespective of whether they were getting to know a specific individual, a specific group of people or a broad group of people. Hamilton's and Sherman's theory cannot fully account for students' confidence about their impressions differing across social targets for some strategies but not others. However, the finding could be accounted for by the public passive strategy having access to a leaner, more limited set of identity cues compared to an interactive strategy. On social network sites, a public passive strategy involves encounters such as viewing profile images and messages posted in public group pages. Consistent with Lea and Spear's (1995) SIDE Model, the reduced availability of cues may have resulted in students being forced to rely more on stereotyping (or categorising in the parlance of Hamilton and Sherman) irrespective of whether they were forming impressions about more coherent or less coherent social targets.

In contrast, an interactive strategy involves encounters such as directly interacting and asking questions of each other in public and private areas of the

social network site. The identity cues accessed using an interactive strategy may have been richer and contained more inconsistencies than the identity cues available to a public passive strategy because they covered a wider range of topics than a single profile image and the students could more easily vary the topics of interest by asking a range of different questions. Due to the richer and more inconsistent identity cues available, students may not have been forced to rely on categorising when using an interactive strategy to form impressions about coherent social targets. Instead, students may have drawn upon the inconsistent identity cues to engage in an individuating process about coherent social targets whilst still relying on categorising as the norm for less coherent social targets. By virtue of the individuation process, students may have been more confident about their impressions formed about coherent targets using an interactive strategy because those impressions were more distinctive, detailed and therefore useful for prediction. Comparatively, students may have been less confident about their impressions formed about any target using a public passive strategy and about less coherent targets using an interactive strategy because those impressions would have been less distinctive, detailed and therefore less useful for prediction due to a reliance on categorising.

The experimental design enables causality to be inferred insofar that the coherence of a social target about whom students get to know can influence how students get to know each other in the weeks prior to starting university. However, the study design precludes inferences about the direction of causality between students' use of the strategies and how confident they were in their impressions. A causal assumption has been made in the proposed explanations that students' choice of strategies led to impression formation processes that

elicited how confident students were in their impressions of each other. Despite the explanations being theoretically driven, the design of the study does not preclude that causation was in the opposite direction: the extent that students were confident in their impressions may have led a decision-making process whereby students selectively choose certain strategies and disregard other strategies when getting to know each other. Given that alternative directions of causation cannot be precluded, the proposed explanations for the public passive and interactive strategies remain tentative pending future research.

An additional layer of complexity is also apparent insofar that the proposed interaction between the strategy and cue availability may be disrupted by the *nature of the affiliation* with the social target about whom impressions are formed. The nature of the affiliation refers to the basis of relationship that students had with the social target about whom they formed an impression, namely whether the students formed impressions about a housemate or a coursemate irrespective of whether those social targets were a group or a specific individual. The more frequently that students used a private passive strategy, involving encounters such as viewing others' tagged photos and status updates on Facebook, then the more confident they were in their impressions of their *coursemates* as a group. In contrast, the more frequently that students used a private passive strategy then the less confident they were in their impressions of their *housemates* as a group or a specific *housemate*.

Other explanations in this section have suggested that students' choice of strategies led to impression formation processes that elicited how confident students were in their impressions of each other. However, a tentative explanation for the emergence of affiliation finding challenges that causal

assumption and instead proposes that the direction of the causality may be bi-directional rather than unidirectional. Specifically, the extent that students were confident about their impressions may have affected how they used strategies which in turn may have affected how confident they were in their impressions, as shall be outlined.

Anxiety research literature may be useful in explaining the difference in confidence between getting to know housemates and coursemates using the same private passive strategy. Anxious individuals demonstrate hypervigilant attention toward visual cues related to the focus of their anxiety. For example, individuals with social anxiety tend to be hypervigilant to social cues whereas individuals with a phobia about spiders tend to attend quickly and frequently to visual cues that resemble spiders (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg & Van Ijzendoorn, 2007; Berggren, Blonievsky & Derakshan, 2015; Bögels & Mansell, 2004; Fox, 2004; Oathes, Squillante, Ray & Nitschke, 2010; Williams, Mathews & Hirsch, 2014; Yiend, 2010).

Hypervigilance could also affect forming impressions insofar that people focus their attention on identity cues that relate to a set of worries pertinent to the individual or group about whom they are forming an impression. Prior to starting university, students worry about the extent that they will socially integrate and enjoy time with their housemates as evidenced by Brooks (2005) and the content analysis reported in Chapter 4. Given the cited hypervigilance research, students who formed impressions about their housemates may have focused on the identity cues relating to sociability because those cues were most relevant to their social worries. Cues relating to academic ability may not have been as relevant given that students were not necessarily studying the same course as their



housemates. Prior starting university, students also worry about their intelligence and the extent to which they will be able to succeed academically on their university course (Brooks, 2005). Students who formed impressions about their coursemates may have focused on identity cues pertaining to their academic ability because those cues were most relevant to those academic worries whereas the identity cues relevant to social worries were left relatively (although perhaps not entirely) ignored. Cues relating to sociability may not have been as relevant given students may have expected the primary nature of their relationship to have involved studying, attending classes and comparing coursework rather than a mainly social activity. The cues relating to sociability were likely not entirely ignored because sociability may have some bearing on academic ability (e.g. if a student is partying then they are unable to study at that time).

Social network sites contain a wide range of identity cues (Zhao, Grasmuck & Martin, 2008) that could be accessed using the private passive strategy. Per the predictions of the cues-filtered in models, the private passive strategy having access to a wide range of identity cues may have enabled students to engage in individuating to form fairly distinctive and detailed impressions of their housemates' sociability and their coursemates' academic ability. However, the attention towards identity cues pertaining to the affiliation of the social target may have resulted in different availability of cues to form impressions about housemates and coursemates respectively.

On social network sites, profile pages contain an enormous range of identity cues about the social activity of their owners including photographs of events and status updates containing comment threads (boyd, 2010; Zhao, Grasmuck & Martin, 2008). The overabundance of identity cues evidencing

sociability may have been counterproductive and caused difficulties for students when forming impressions about new housemates. The sheer vastness and overabundance of sociability cues may have resulted in a range of inconsistencies which were more difficult to reconcile particularly given profile owners would likely adjust their language and self-presentation when sharing posts or interacting on their profile pages with different audiences (e.g. close friends, family, weaker ties, colleagues; Goffman, 1959). Difficulties reconciling identity cues may have lowered the students' ability to predict how their housemates might act in social situations and therefore how confident the students were in their impressions of their housemates. The students may not have known which of the inconsistent identity cues to trust or they may have perceived the inconsistent identity cues as evidence that their housemate was misrepresenting him or herself.

Comparatively, students may have had greater success reconciling identity cues about coursemates by virtue of academic identity cues being relatively less abundant and thus there were fewer combinations of inconsistent cues requiring reconciliation compared to sociability cues used for housemates. The fewer inconsistencies would have mounted less of a challenge to the perceived accuracy of the students formed about the academic ability of their coursemates compared to the sociability of their housemates, leading to higher confidence about their impressions formed from those cues. Academic cues on profile pages may still have been abundant and amenable to individuating given that a wide availability of cues would have been expressed through photographs (e.g. celebrating academic success; photographs of scholarly activities such as revision; photographs of activities that are stereotyped as being 'intelligent') and

written posts (e.g. exclamation of academic success; formal use of grammar; sharing of news articles indicating deep knowledge across a range of topic areas). However, the academic cues may still be significantly less abundant relative to enormous overabundance of sociability cues.

Earlier findings in this study suggest that the availability of identity cues may be beneficial for students' confidence when forming impressions about coherent social targets rather than less coherent social targets. However, the proposed explanation for the influence of the affiliation highlights that the greater availability of identity cues may only be beneficial for students' confidence about their impressions up to a threshold. Specifically, a greater availability of cues may enable people to form more detailed, tailored and confident impressions of others when those social targets are perceived to be more coherent *apart when those cues exhibit significant inconsistency* at which point the greater availability of identity cues becomes counterproductive for forming confident impressions. Further research is required to examine the explanation, however, given that the current study did not examine the content of students' impressions nor the identity cues that were available or attended toward. Similarly, the design of the current study precludes any definitive causal inferences. Though the bidirectional chain of causation that has been proposed is based on a theoretical understanding of the research field, further research is required to examine whether the proposed explanation and the causal assumptions are appropriate. Without the future research, the proposed explanations remains tentative.

*Worries, and the role of confidence in impressions about groups and individual*

The current study matched the findings of the questionnaire study in Chapter 4 by demonstrating that the strategies that students used to get to know others on social network sites were linked to how worried they were about their future university experience, and that the students' confidence in their impressions could partially account for that relationship. The questionnaire study reported in Chapter 4 only focused on the relationship for impressions about a general group of people however. The current study extended the relationship for impressions about a specific individual and more a specific group of people too.

As in the questionnaire study reported in Chapter 4, there was often a follow-on link between how confident students were in their impression and how worried they were about university. When the private passive and the interactive strategies on social network sites was linked to students being *less confident* in an impression of any social target, there was a follow-on link with students being *more* worried about university. When the same strategies were linked to students being *more confident* in an impression, there was a follow-on link with students being *less* worried about university. The finding was persistent irrespective of the social target being a specific individual, a distinct group of people, or a more general group of people.

Unlike the previous chapter, the follow-on link between students' confidence in their impressions and the intensity of their worries about university was not apparent for the public passive strategy. The more frequently that students used a public passive strategy then the *less* confident they were in their impressions about a specific housemate or a group of housemates at their university. In turn, they were *less* worried about the social aspects of university

as opposed to more worried unlike the private passive and interactive strategies. The same discrepancy was also apparent when using a public passive strategy to form impressions about coursemates and academic worries about university.

The difference may be explained by students being more tolerant of lower confidence in their impressions when using a public passive strategy compared to the private passive and interactive strategies. A private passive strategy has access to a wide range of rich identity cues from encounters such as viewing photographs and wall posts on profile pages (Zhao, Grasmuck & Martin, 2008). Similarly, an interactive strategy has access to a wide range of identity cues including chronemic cues and the detailed often intimate responses that result from questions and reciprocal self-disclosure in online environments (Joinson, 2001; McKenna, Green & Gleason, 2002; Tidwell & Walther, 2002; Valkenburg & Peter, 2007a; 2007b). Comparatively, the public passive strategy does not have access to as comprehensive source of rich identity cues because only limited content on social network sites is protected behind privacy settings (Madden, 2012).

The sparsity of identity cues available to a public passive strategy could have resulted in students having difficulty being confident about their impressions about each other. Research suggests that people facing substantial uncertainty often reinterpret that uncertainty as acceptable and the norm (Knobloch & McAninch, 2014; Mishel, 1990; Siegl & Morse, 1994). The cited research may be applicable to the current study insofar that lower confidence about impressions is synonymous with lower certainty about predicting the future behaviour of the person or people about whom an impression is formed (Clatterbuck, 1979). Applied to the current study, the lack of confidence may

have been so pronounced for impressions formed from a public passive strategy that students increasingly reinterpreted their uncertainty as a normal and acceptable part of the university experience the more that they used the strategy. By reinterpreting uncertainty as a normal, the students may have increasingly tolerated being less confident in their impressions and increasingly withheld judgement about their future university experiences, lowering how worried they were about their social and academic success at university.

The proposed explanation assumes that the confidence that students had about their impressions affected their worries about university. Though based on evidence and theory from the research literature, the proposed explanation remains tentative because the study measured students' confidence and worries only once and did not experimentally manipulate how confident or worried students were during the weeks prior to starting university. A reversed causal direction cannot be rejected insofar that the intensity of worries may have affected the extent that students were confident in their impressions. Further research is required to disentangle causation otherwise the proposed explanation will remain tentative given that alternative explanations that reverse causation would not be rejected.

The current study also identified that the nature of the affiliation was important when considering the link between students' impressions and their worries. Whereas the intensity of students' academic worries was associated with how confident students were in their impressions about their *coursemates* as a group, there was no similar association when impressions were about students' *housemates* as a group. The difference may have been due to relevance of the affiliation for the worries being considered. As discussed, anxious individuals

demonstrate hypervigilant attention toward visual cues related to the focus of their anxiety (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg & Van Ijzendoorn, 2007; Bögels & Mansell, 2004; Fox, 2004). Hypervigilance could also affect forming impressions insofar that individuals focus their attention on identity cues related to a set of worries pertinent to the individual or group about whom they are forming an impression. Coursemates were relevant to academic worries because students were sharing the same course. However, housemates were less relevant to academic worries because students may not necessarily have been living with people who were studying the same course as them but instead were due to study other courses with no relevance to each other's course.

The same hypervigilance explanation can be used to understand why there was no relationship between students' confidence in their impressions and the intensity of their social worries about university when their impressions were about a specific *housemate* and a group of *housemates* but not when their impressions were about a specific *coursemate*. The difference may again be due to relevance. Students may have expected to spend more time socialising with their housemates but did not have the same expectation with their coursemates whom they instead expected to spend time studying.

Relevance may also have been important when considering the type of social target about whom students formed impressions. Students reported experiencing less intense academic worries when using an interactive strategy to get to know a *specific coursemate* or a *specific group of coursemates* but more intense worries when using the same interaction strategy to get to know a *general group of people at their university*. Drawing upon the explanation offered in the preceding paragraph, the finding may be explained by coursemates being more

relevant to students' academic worries than the general type of people at their university. Impressions about a specific coursemate or group of coursemates are particularly relevant to a student studying a biology course because, by definition, they share the same course as each other. Impressions about the general type of people at the student's university are much less relevant to a student studying biology because the courses that the broader group will study are varied and includes subjects with no relation to biology.

Although the relevance of an impression offers a logical explanation for various findings involving students' worries, the evidence from the study is insufficient for either supporting or refuting such an explanation given that the content of students' impressions was not measured. Further research is required to compare how worries about university are related to the content of the impressions that students form on social network sites across a range of different social targets and affiliations in the weeks prior to starting university. In addition, the proposed explanation also made the causal assumption that students' worries arose as the result of students' impressions. By measuring students' responses at a single point in time, however, this study did not preclude the possibility the direction of causality was reversed therefore alternative explanations cannot be rejected.

### *Conclusion*

The study reported in this chapter provided further insight into how incoming undergraduate students form impressions about each other on social network sites in the weeks prior to starting university. The study extended previous research exploring impressions and impression formation on social network sites



by suggesting that impression formation was influenced by the type of social target, the affiliation with that target, and the strategy used to get to know that target. Explanations for how impression formation is influenced by the type of social target, the affiliation with that target, and the strategy used to get to know that target were offered. However, no explanations were tested. Consequently, future research should explore the influence of social targets and the use of different strategies on impression formation, with a focus on testing explanations for those differences.

## **Chapter 6 – General discussion**

This thesis explored impression formation on social network sites using an applied scenario, namely how students get to know each other in the weeks prior to starting university from social network sites like Facebook.

The thesis centrally focused on how confident students were in their impressions about others. From that central focus, however, this thesis explored side topics including how students' confidence in impressions was related to their worries about university, the strategy that they used to get to know each other on social network sites, and the types of social targets about whom the students formed impressions. Three studies demonstrated that impression formation may be influenced by the coherence of the social target about whom students formed impressions, the nature of the affiliation with that social target, and the strategy that students used to get to know them. In addition, this thesis suggested that impression formation may play a role in students' experience of worries about university and therefore the students' worries may also be influenced by the coherence of the social target about whom they formed impressions, the nature of their affiliation with that social target, and the strategy that they used to get to know them. However, further research is required to test the proposed explanations for the findings including the rejection of alternative explanations with alternative causal interpretations.

### **Strategies that people use when getting to know others**

Students in Studies 1, 2 and 3 used distinct strategies when trying to get to know each other: the public passive, private passive, interactive, and active strategies. The interactive and active strategies have been previously outlined when people

get to know a specific individual on social network sites (e.g. Antheunis, Valkenburg & Peter, 2010) and encounters in offline environments (e.g. Berger, 1979). However, Studies 2 and 3 distinguished between private and public passive strategies. The public-private distinction was based on the privacy settings that are a central feature of social network sites. Users of social network sites can generally only view certain types of content about others on social network sites without ‘friending’ them (e.g. profile images; public posts). Once ‘friending’ them, students in Studies 2 and 3 could access richer, more comprehensive content about people on social network sites (e.g. tagged photographs; status updates; Wang, 2015).

The distinction between public and private versions of the passive strategy has not emerged in other research exploring impression formation on social network sites. For instance, Antheunis, Valkenburg and Peter (2010) defined only a single passive strategy and did not distinguish between private and public strategies. As discussed in Chapter 4 and 5, the distinction likely emerged in this thesis because the privacy settings were not as available or heavily used when Antheunis et al. conducted their study.

The distinction between private and public is central to the identity construction research involving social network sites (e.g. Amichai-Hamburger & Vinitzky, 2010; boyd, 2007; Houghton & Joinson, 2010; Ellison, 2007; Rosenberg & Egbert, 2011; Stutzman, Capra, & Thompson, 2011; Vitak, 2012). Consequently, it was surprising that limited research acknowledged the private-public distinction when people form impressions about others on the websites. The distinction is important to identity construction twofold. First, privacy settings segregate audiences meaning that at least two identities are constructed:

a comprehensive private identity consisting of content and identity cues only accessible to a select group, and a limited public identity consisting of content and identity cues accessible to a wider audience of strangers (Marwick, 2014; Mullen & Hamilton, 2016; Stutzman & Kramer-Duffield, 2010). Second, privacy settings may encourage self-disclosure. Research suggests that a greater sense of visual anonymity and privacy is linked to increased self-disclosure (Joinson, 2001; McKenna, Green & Gleason, 2002; Tidwell & Walther, 2002; Valkenburg & Peter, 2007a; 2007b). Despite being visually identifiable to their friends, privacy settings still afford users control over content reaching an audience of strangers. If privacy settings were unavailable on social network sites then people may share less personal information about themselves due to fear of information being available to unintended and unknown audiences such as employers, ex-partners or complete strangers (Marder, Joinson, Shankar & Houghton, 2016). Consequently, the content and identity cues that users share on social network sites within the restricted areas of their profile pages may be more substantive due to the availability of privacy settings.

The importance of the public-private distinction in identity construction means that the same distinction should emerge in impression formation. The availability of identity cues to form impressions upon partially depends on the identity construction process (e.g. Goffman, 1959; Leary, 1994). Privacy settings offer both a greater availability of identity cues (e.g. by encouraging more intimate self-disclosure; for audiences with an established friendship connection) and a lower availability of identity cues (e.g. for audiences without established friendship connections) from which to form impressions.

The variable availability of identity cues that emerges from the private-public distinction becomes evident when considering impression formation theories which suggest that the availability of identity cues can affect both the processing of those identity cues and the eventual impressions that are formed from that processing (Hancock & Dunham, 2001). Extrapolated to privacy settings, the Hyperpersonal and SIDE Models suggest that impressions should be more exaggerated, more idealised and less detailed when accessing the reduced cues available to the public passive strategy compared to the rich identity cues available to the private passive strategy (Lea & Spears, 1995; Walther, 1996). The Social Information Processing Theory would also suggest that the exaggeration and limited detail would degrade iteratively over time as people encounter each other more in the reduced-cue public areas (Reicher, Spears & Postmes, 1995). To date, the proposed effect of privacy settings on the content of impressions has remained relatively unexplored therefore this thesis has highlighted that such settings should attract greater prominence in the impression formation research given described chain between the privacy settings, identity construction and impression formation.

A potential criticism against research involving social network sites is that the findings are bounded by the time in which the studies were conducted. Despite being conducted between 2010 and 2012, however, the studies reported in this thesis retain their usefulness over time by focusing upon broad conceptual differences between the public passive, private passive, interactive and active strategies which group together multiple encounters that are conceptually similar. By focusing on broad conceptual differences, the thesis transcended changes and

nuances in how social network sites implement specific features and how people use them (boyd, 2014).

Focusing upon specific features would have offered limited utility because social network sites rapidly change with the regular addition, honing and withdrawal of features (Ellison, 2007; Ellison & Vitak, 2015). For example, the relative prominence of content on Facebook profile pages have changed several times since 2010 and 2011 (Wilson, Gosling & Graham, 2012). Photographs have become more prominent with Facebook users being able to add a large photograph that spans the top of their profile page (known as a ‘cover photograph’). Recent shared photographs and written status updates also take up a significantly larger proportion of the profile page compared to prominence of other content including autobiographical ‘About me’ descriptions and preference lists which have been relegated to separate tabs that are not shown by default (e.g. favourite movies and books; Feinberg, 2014; Hahn, 2014).

The private messaging platform has also changed several times since the creation of Facebook and these studies were conducted. The private messaging interface has evolved from being a rigid inbox/output system separated from profile pages and the newsfeed whereas the version at the time of writing is akin to a less obtrusive instant messaging platform that appears alongside profile pages and the newsfeed. Private messages can now also be sent within groups of users rather than only between two users (Sleeper et al., 2016). Senders can also be notified when a recipient has read their message and recipients can view the location where the message was composed (Sleeper et al., 2016).

Some social network sites have also launched collaborative activities relating to live, real time events (e.g. sporting events; independent music shows).

For example, Facebook recently launched features allowing users to broadcast live video captured using smartphones (Kolowich, 2016). Coupling live video with the commenting features, users can watch and discuss the same event despite being in separate locations and perhaps having never met (Kolowich, 2016; Mourão, 2015).

By focusing upon broad conceptual strategies, the findings of this thesis are less dependent on the regular changes in the features available across social network sites. Instead, the findings are contingent on core aspects that persist over time rather than upon the nuances of specific features. One core aspect is the distinction between private and public content that was drawn upon by the public and private passive strategies. Even if privacy settings evolve over time the settings still fundamentally distinguish between public and private content and therefore will still reduce the availability of identity cues to some users but not others (Enli & Thumim, 2012; Stutzman, Gross & Acquisti, 2013; Tagg & Seargeant, 2012). The public-private distinction is apparent within new and modified features on social network sites. For example, the new feature for live video broadcasting of events can be protected behind privacy settings should users desire (Kolowich, 2016). Furthermore, the relative prominence of photographs may have changed on Facebook profile pages but the availability of those contents to specific audiences can still be customised using privacy settings (Kairam, Brzozowski, Huffaker, & Chi, 2012; Lampinen, Lehtinen, Lehmuskallio, & Tamminen, 2011). Similarly, users can restrict read receipts and location information from being sent with through private messages should they wish (Cipriani, 2012). The private-public distinction is likely to remain given calls for designers of social network sites to ensure customisable privacy

settings are inherently designed into new features (DeWolf, Heyman, & Pierson, 2012) and the public outcry resulting from perceived changes to the privacy of users' content on the websites (Hoadley, Xu, Lee & Rosson, 2010).

The focus upon conceptual differences between strategies also ensured the relevance of the thesis beyond the private-public distinction. The core difference between passive (both private and public) and interactive strategies is the extent that users directly engage with each other (Berger, 1979). Passive strategies involve users viewing each other's shared content without interacting whereas the interactive strategy involves users directly engaging with each other and their shared content (Antheunis, Valkenburg & Peter, 2010). Despite the changes to the private messaging interface on Facebook, the core nature of messaging feature enables direct interaction therefore private messaging encounters remain aligned to the interactive strategy rather than a passive strategy. Similarly, the act of observing shared photographs (i.e. a private passive strategy) can still be distinguished from directly interacting with others (i.e. commenting on photographs or sending a direct message to the user) despite changes in the prominence of photographs on profile pages.

By focusing on students' use of strategies, comparisons between this thesis and future work will be easier than if the thesis had focused upon specific encounters. The broad strategies also enable easier comparisons beyond social network sites because strategies have been successfully applied to other environments including dating websites (Gibbs, Ellison & Lai, 2011), email (Ramirez et al., 2002), and face-to-face meetings (Gudykunst & Nishida, 1984).



### **Confidence in impressions**

The studies in this thesis demonstrated that students formed impressions about a range of social targets on social network sites. Those targets included impressions about a group of people (e.g. the general type of people at their university; a group of housemates or coursemates) and a specific individual (e.g. an individual housemate or coursemate). Previous research has focused near-entirely on impressions about a specific individual (e.g. Antheunis, Valkenburg & Peter, 2010) with negligible literature on impressions about a group of people using the passive, interactive and active strategies on social network sites.

In Study 1, there was a considerable variance in the extent that students were confident about their impressions of groups and individuals at their university. Some students were sceptical about the impressions that they formed about other people at their university from social network sites. The students' scepticism mirrors previous research in which people perceived that their impressions formed from online encounters are inferior to those formed from face-to-face encounters (e.g. Gibbs, Ellison & Heino, 2006; Gibbs, Ellison & Lai, 2011; Lea & Spears, 1995). People are often sceptical of their impressions in online environments because it is more difficult to verify identity claims and detect self-enhancement compared to face-to-face given the greater visual anonymity, physical isolation, asynchronicity and editability afforded by many online environments (Gibbs, Ellison & Heino, 2006; Walther, 2006; Walther & Parks, 2002). Other students, however, were much less sceptical about their impressions and were fairly confident about their impressions.

The findings from Studies 2 and 3 can help to understand the wide variance in how confident the students were about their impressions. Based on

Studies 2 and 3, the exact nature of the link between the students' use of strategies to get to know each other and how confident they were in their impressions depended on at least three factors: the coherence of the social target that students were forming impressions about, the nature of the affiliation with that target, and the strategy that students used when getting to know them. Explanations offered for those factors could expand how existing cues-filtered in theories of impression formation portray the availability of identity cues, the extent to which those cues are perceived to be manipulated, and the subsequent processing of those cues.

Cues-filtered in theories highlight that the availability of identity cues can affect impression formation insofar that impressions formed in reduced-cue environments can be more exaggerated, less detailed (Lea & Spears, 1995; Walther, 1996) and take longer to form than impressions formed in cue-rich environments (Dennis & Kinney, 1998; Walther & Burgoon, 1992). However, the explanations offered in his thesis highlight that the availability of cues may not be a static concept that is consistent within an online environment but instead fluctuates based on an interplay between the concerns of the person forming the impression, the nature of the affiliation between the person forming the impression and the social target of that impression, and the types of identity cues that are explicitly or implicitly encouraged by an environment. Study 3 indicated that the extent to which students were confident about their impressions when using a private passive strategy depended on the nature of the affiliation with the social target they were forming an impression, namely whether they were forming impressions about housemates or coursemates. The proposed explanation was that students may have focused on identity cues pertinent to

their concerns of the affiliation involved. The identity cues focused upon for some affiliations (e.g. sociability about housemates) may have been enormously overabundant in profile pages due to the inherently social features offered on social network sites (e.g. wall posts, photographs, comments). Those overabundant identity cues may have exhibited greater inconsistency and been more difficult to reconcile through individuation processes than identity cues that were common but not as overabundant (e.g. academic ability about coursemates).

Further research is required to validate the proposed explanation. However, if correct, the explanation would challenge existing cue-filtered out theories given that the theories do not fully account for online environments encouraging certain types of identity cues over others. The Hyperpersonal Model offers some promise by recognising that online environments encourage more selective, idealised self-presentation which in turn can affect the identity cues available for impression formation (Walther, 1996). However, the proposed explanation extends the theory beyond encouraging socially desirable cues and instead suggests that the design of the online environment can encourage a particular set of cues (i.e. sociability cues) over others (i.e. cues about academic ability) even though both sets might be deemed socially desirable.

Irrespective of the explanation and the implications of that explanation for theory, the influence of affiliation on impression formation has an implication for future research. As described in the Introduction (Chapter 1) and Literature Review (Chapter 2), the basis for undertaking this thesis was that existing impression formation research does not always account for the nuances of impression formation in applied scenarios. When investigating impression formation, this thesis suggests that researchers should account for specific

nuances in the concerns and social relationships between the person forming the impression and the social target about whom they form their impression. Those nuances may, as demonstrated by this thesis, have a significant effect on the impression formation process.

This thesis also proposed an additional expansion to cues-filtered in theories to account for expectations of coherence in social targets. Study 3 indicated that students who more frequently used an interactive strategy were *more* confident in their impressions about a specific individual (e.g. a housemate or a coursemate) or a specific group of people (e.g. a group of housemates) but *less* confident about their impressions of a general group of people. In contrast, students who more frequently used a public passive strategy were less confident about their impressions irrespective of whether the impressions involved a specific individual, a specific group of people or a general group of people.

Drawing upon Hamilton and Sherman (1996), an explanation for the difference was proposed insofar that individuating of identity cues is more common for social targets expected to be more coherent (e.g. specific individual or specific group of people) whereas stereotyping is more common for social targets expected to be less coherent (e.g. a general group of people). However, the rebalancing of individuating versus stereotyping processes is only possible when there is a sufficient availability of identity cues to engage in individuation (e.g. an interactive strategy) otherwise impressions about all social targets will be forced to rely on categorising (e.g. a public passive strategy).

The proposed explanation offers a unique combination of the Lea and Spear's SIDE Model and Hamilton and Sherman's theory of impression formation. The SIDE Model suggests that the increased availability of cues in

online environments can result in the formation of impressions that rely less on stereotyping and more on individuating (Coleman, Paternite & Sherman, 1999; Hancock & Dunham, 2001; Lea & Spears, 1995; Lea, Spears & de Groot, 2001; Spears & Lea, 1992). Drawing upon Hamilton and Sherman's theory, however, the finding from the current study can be extrapolated to predict that the increased availability of cues will result in less stereotyping *but only when there is an expectation that the social target is coherent.*

This thesis is one of the first to apply Hamilton and Sherman's theory to an online environment as the theory is usually tested experimentally by asking participants to read about social targets from a text-only document such as a newspaper article (e.g. Castano, Sacchi, & Gries, 2003; McConnell, Sherman & Hamilton, 1994; Sanbonmatsu, Sherman & Hamilton, 1987; Smith, Faro & Burson, 2013; Susskind, Maurer, Thakkar, Hamilton & Sherman, 1999). Study 3 shows that Hamilton and Sherman's theory can also be applied to social network sites too although may require a slight amendment to account for the availability of identity cues between different strategies and the encounters aligned to those strategies. However, none of the studies in this thesis were sufficient in supporting or rejecting the proposed explanation. Consequently, further research is required to test the explanation and to explore the types of identity cues available to public passive and interactive strategies on social network sites. Nonetheless, the finding highlights that impression formation research involving impressions about a specific individual cannot necessarily be generalised to impressions about a group of people (and vice versa) but instead depends on the coherence of the social target and the strategies used to get to know that target.

As mentioned throughout this discussion, three strategies were linked to how confident students were in their impressions about both groups and individuals at their university: the public passive, private passive and interactive strategies. Antheunis, Valkenburg and Peter (2010) had previously identified that the interactive strategy was linked to how confident people were in their impressions about a specific individual. However, Studies 2 and 3 showed that all three strategies were linked to how confident people are in their impressions about groups of people, regardless of whether that group was specific and more coherent (e.g. a group of housemates or coursemate) or broad and less coherent (e.g. the general type of people at the students' new university). By extending those strategies to groups of people, Studies 2 and 3 demonstrated that impressions about groups could be formed from the same strategies on social network sites as impressions about a specific individual.

Though the studies explored the use of the strategies separately from one another, the strategies could feasibly be used alongside and in combination with each other during the same session on a social network site. For example, students could switch between private messaging (an interactive strategy) with a coursemate and then view the photographs on a coursemate's profile page (a private passive strategy). Similarly, students can view the interactions of housemates in a comment thread on a group page (a public passive strategy) and then choose engage in those interactions should they be interested (an interactive strategy). Further research is required to understand whether and how the students combined use of the strategies is linked to impression formation particularly when the content gleaned from different strategies conflicts. If an impression formed from a public passive strategy (e.g. viewing a person's profile

images or their content in public group pages) conflicts with the impression formed from a private passive strategy (e.g. viewing a person's tagged photographs) or an active strategy (e.g. viewing content shared on a person's profile page by his or her friends and family) then it is unclear which content will be given the most weight when students form their impressions nor the extent that the conflict would impact upon how confident students would be in their impressions.

Existing theory and research can help to understand the likely outcome of such a scenario whereby two strategies offer conflicting information. Theory and research suggest that identity cues that are perceived as more verifiable or less open to manipulation tend to be more influential when forming impressions than identity cues that are less verifiable or more open to manipulation (DeAndrea, 2014; Walther, 2011; Walther & Parks, 2002; Walther, Van Der Heide, Hamel & Shulman, 2009; Van Der Heide et al., 2012).

The manipulation of identity cues could be extrapolated to conflicting impressions formed from active and public passive strategies. People forming impressions may consider that identity cues accessed using an active strategy are more credible than conflicting identity cues accessed using a public passive strategy. The superior credibility of the former identity cues would be due to the active strategy giving access to a range of identity cues generated by third parties such as friends and family who have a less vested interest in positively enhancing the identity of the profile owner than the profile owner themselves (Antheunis & Schouten, 2011; Hong, Tandoc, Kim, Kim, & Wise, 2012; Van Der Heide et al., 2012; Walther, Van Der Heide, Hamel & Shulman, 2009). Comparatively, the public passive strategy would provide minimal access to third-party identity cues

about a person and instead would access identity cues primarily generated by the person him or herself which are more open to enhancement (Van Der Heide et al., 2012). Unlike identity cues from a public passive strategy which does not have comprehensive access to a profile page, identity cues from an active strategy can also be verified by cross-referencing and comparing identity cues from multiple third-parties (Walther, Van Der Heide, Hamel, & Shulman, 2009).

Similar predictions can be made when faced with inconsistent identity cues from private and public passive strategies. The public passive strategy involves encounters such as viewing posts written in group pages. For students getting to know each other in the weeks prior to starting university, groups pages offer the opportunity for students to interact with relative strangers who are their new housemates and coursemates (Alemán & Wartman, 2008). People tend to present less idealised versions of themselves when in online environments surrounded by anchored relationships such as friends and family than when they are in an environment involving unanchored relationships such as strangers (DeAndrea, 2014; Tice, Butler, Muraven, & Stillwell, 1995; Toma, Hancock & Ellison, 2008; Warkentin, Woodworth, Hancock & Cormier, 2010; Walther, 2011; Zhao, Grasmuck & Martin, 2008).

Given that students would be interacting in group pages with strangers with whom they had unanchored relationships prior to starting university, the public passive identity cues may be perceived as more open to manipulation compared to the private passive identity cues that are available to a private passive identity cue on profile pages where anchored relationships with friends and family are more common and salient. The perception that cues available to a public passive strategy are open to manipulation is apt given that many students



in the focus groups in Study 1 described that their housemates, their coursemates and they themselves were overly positive and on their “best behaviour” when interacting with each other in the weeks prior to starting university. Extrapolating Warranting Theory, identity cues encountered through a private passive strategy on a profile page will likely receive precedence in a resultant impression than a conflicting identity cue encountered through group pages because the former will be perceived as less open to manipulation compared to the latter.

This thesis explored students’ confidence in their impressions but did not determine whether any scepticism towards their impressions were misplaced. However, the private-public distinction raises a future research avenue to determine if students’ scepticism towards their impressions was appropriate. In both the questionnaire and experimental studies, the difference between private and public passive strategies was important to the students’ confidence about their impressions. The ability to use the private passive strategy rather than the public passive strategy likely depended on whether students had established friendship connections with each other on social network sites in the weeks prior to starting university (Wilson, Gosling, & Graham, 2012; Young & Quan-Haase, 2013). In the focus groups reported in Chapter 3, some students reported having added each other as friends on Facebook in the weeks prior to starting university whereas others reported not having established those virtual friendship connections until after they had arrived at university. The variance in such ‘friending’ behaviour may be partially explained by personality. Individuals who score higher on narcissistic personality inventories tend to have higher friend counts and looser friending practices on Facebook than those who score lower on narcissistic personality tendencies (Buffardi & Campbell, 2012; Lee, Moore,

Park & Park, 2012). Consequently, students may have been more likely to have access to the profile pages of their coursemates and housemates exhibiting narcissistic tendencies than those who did not have narcissistic tendencies.

Per the findings from the experimental and questionnaire studies, students may have been more confident about their impressions of those coursemates and housemates with narcissistic tendencies due to likely having established a friendship connection and being able to use a private passive strategy to get to know them. In contrast, students may have been less confident about their impressions of their coursemates and housemates with fewer narcissistic tendencies because were less likely to have established a friendship connection and been unable to use a private passive strategy to get to know them. However, the higher confidence that students had in their impressions when using a private passive strategy may have been misplaced particularly if the strategy mostly involved getting to know housemates and coursemates with narcissistic tendencies. Narcissists are also more likely to engage in self-promotion and presenting themselves in a socially desirable manner than their peers (Campbell & Foster, 2007; Collins & Stukas, 2008; Fox & Rooney, 2015; Ong et al., 2011). The prediction is tentative, however, because people narcissists may still restrain their self-enhancement on profile pages given that they will be interacting with friends who can detect and denigrate their misrepresentation (Zhao, Grasmuck & Martin, 2008). Further research should disentangle how friending behaviour, the privacy settings of the profile owners, and the personality of profile owners affects profile owners' self-enhancement and the subsequent accuracy of content that students access when getting to know each other in the weeks prior to starting university.

### **Impression formation and the experience of worry**

The thesis provided an insight into the role that impression formation may play in students' experience of worry about university. During the focus groups in Study 1, some students reported that the impressions that they formed on social network sites had alleviated their worries about the academic and social aspects of university. Other students reported that forming impressions made their worries about university worse. The variability and contrasts in students' experience of worry may be explained by differences in how confident the students were in their impressions about others. Studies 2 and 3 demonstrated that students who are more confident about their impressions tend to worry less about university whereas students who are less confident about their impressions tend to worry more.

The impression formation explanation fits well with existing research. Researchers have theorised that people experience anxiety when they are uncertain about others with whom future interaction is unavoidable such as coursemates and housemates attending the same university (Berger & Douglas, 1981; Douglas, 1987). Anxiety is the physiological and cognitive experience of unease, worry, apprehension and fear in anticipation of an event such as starting university or beginning a new job (Ree, French, MacLeod & Locke, 2008; Spielberger, 1985a; 1985b). Although worry is part of the anxiety definition, existing research investigating the confidence that individuals have in their impressions has rarely focused on the content of the worries experienced (e.g. Berger & Douglas, 1981; Douglas, 1987).

The experience of anxiety is more general in scope than the more focused, specific nature of worries referred in the studies reported in this thesis.

Examples of worries in the university worries scale used in Studies 2 and 3 include: “I will not be able manage my time for studying”, “I will become lonely”, and “It will be hard for me to find a new peer group that I can connect with” (Brooks, 2005). Comparatively, the physiological and cognitive manifestation of a person’s anxiety is commonly measured using general items including: “My palms feel clammy”, “I have butterflies in my stomach”, “I think the worst will happen” and “I picture some future misfortune” (Grös, Antony, Simms & McCabe, 2007). The general conceptualisation of anxiety fails to cover the situation-specific, nuanced and multidimensional worries that people have when they experience anxiety. Given the focus on specific worries, this thesis highlighted that the relationship between confidence in impressions and wellbeing can be extended to specific types of worries in the transition to university and not solely to the general experience of anxiety.

Based on the focus groups in Chapter 3, students formed impressions about each other in the weeks prior to starting university that were egocentric. For example, some students formed an impression about the intelligence of their new coursemates but described that intelligence in relation to themselves. The egocentric nature of impressions may be explained by social comparison processes whereby people make comparisons between themselves and others to better understand their own abilities and likelihood of success (Festinger, 1954; Haferkamp & Krämer, 2011; Kruglanski & Mayseless, 1990; Lee, 2014). Social comparisons are more prominent during times of uncertainty and transition when challenges and required skillsets are unclear (Higgins, Loeb & Ruble, 1995; Martin, 2000; Martin, Suls, & Wheeler, 2002; Ruble, 1994). In the weeks prior to starting university, students are often uncertain about the academic and social

challenges and their ability to overcome them (e.g. Brooks, 2005). Consequently, the egocentric impressions may have resulted from students forming impressions about their coursemates and housemates during a period of change when they sought to better assess their ability to succeed at university.

The egocentric impressions finding and the linked social comparison theory may elucidate the relationship between students' worries and their confidence in their impressions identified in Chapters 4 and 5. As egocentric impressions were based on comparisons to others, the confidence that students had in their impressions about others would also be reflective of the certainty that they had when assessing their own abilities and the likelihood of success. The confidence that students had in their assessments of their own abilities and future success may have uniquely contributed to their worries about university. If a student was more confident about his impression of a coursemates' intelligence then he may also be more certain about any assessment he made about his own ability to academically succeed at university, irrespective of whether the expected outcome was positive (i.e. he will succeed academically) or negative (i.e. he will fail).

The unique contribution of confidence in impressions on worry would be to similar to research describing how uncertain people are about their prognosis with diseases such as HIV. Brashers (2001) suggested that patients who are more certain about their disease prognosis experience less intense worry about the disease and their future, irrespective of the prognosis being positive or negative, compared to those who are less certain about their disease prognosis. Similar findings have emerged for clinical anxiety insofar that outcome uncertainty is a core factor that intensifies anxiety irrespective of the expected outcome being

positive or negative (Dugas, Gosselin & Ladouceur, 2001). The proposed explanation assumes that students' confidence in their impressions influenced their worries about university. Although the explanation was based on an extrapolation of existing research, the single-time design of the studies in this thesis do not preclude alternative explanations including that causation was reversed.

The links between students confidence and worries may interest university departments responsible for student induction. Researchers have investigated how social network sites can improve students' transition to university although has focused on the social support benefits of the websites after arriving at university rather than impression formation prior to university as suggested by this thesis (e.g. DeAndrea, Ellison, LaRose, Steinfield & Fiore, 2012). As students who were more confident about their impressions tended to worry less about the social and academic aspects of their university experience, universities should consider encouraging incoming students to use specific strategies that could help them become more confident in their impressions of each other.

Universities could draw upon the finding from Study 3 that students who more frequently used a private passive strategy to get to know others tended to be more confident about their impressions and less worried about university whereas the opposite was the case using a public passive strategy. The core distinction between the private and public passive strategies is whether encountered content is protected by privacy settings or not. Privacy settings on social network sites are commonly based on establishing a virtual friendship connection (Marwick, 2014). Universities could encourage their incoming

students to 'friend' their housemates and coursemates on social network sites in the weeks prior to starting university. By friending each other on Facebook for instance, housemates and coursemates would have access to content on each other's profile pages that would otherwise be inaccessible, including tagged photographs and status updates. Housemates and coursemates would be able to use a private passive strategy to get to know each other which, if the proposed explanation is correct, could make them more confident about their impressions of each other and alleviate some of their worries about the academic and social aspects of university.

Universities, however, should not consider friending to be a holistic solution to improving student transition because friending could be counterproductive for the worries of students who reject the practice. Many users of social network sites have concerns about sharing personal information with strangers (Acquisit & Gross, 2006; Stutzman, 2006). Students with high privacy concerns could experience discomfort and worry about the prospect of sharing personal information with housemates and coursemates whom they have never met, know little about, and have established trust. Furthermore, students who choose not to friend others on social network sites until arriving at university may experience isolation and worry due to about a group integrating without them.

If students established friendship connections with each other on social network sites prior to starting university, they may also experience difficulties after arriving at university particularly if they wish to unfriend their new housemates or coursemates. Students might unfriend another person after the souring of the relationship, a negative opinion of the other person, an excessive

or inappropriate posting by the other person on the social network site, or the social ties between the pair remaining extremely weak with infrequent and negligible interaction (Peña & Brody, 2014; Sibona & Walczak, 2011; 2014). However, students may feel uncomfortable about unfriending their housemates and coursemates because people often become upset and react negatively when unfriended (Bevan, Pfyl & Barclay, 2012) and subsequent face-to-face interactions can become awkward and strained (Sibona, 2013). The negative trajectory of a relationship after unfriending could be problematic for students who may unavoidably encounter each if they study the same course or live in the same accommodation.

To ameliorate the difficulties, the designers of social network sites could implement temporary networks which expire after a designated timeframe (e.g. three weeks after students arrived at university) and allow members access to each other's profile pages without establishing a virtual friendship connection. For example, students could join a temporary network of incoming coursemates therefore allowing any other coursemates in that network access to their profile page and affording them use of a private passive strategy that is associated with increased confidence in impressions and lower worries about university. If a pair of students had not established a virtual friendship connection on the website prior to temporary network expiring, then they would no longer have access to each other's profile pages. Unlike if students had unfriended each other, blame would no longer lie with students but instead with the website designers.

Historically, features similar to temporary networks have been available on social network sites. On Facebook, corporate and regional networks allowed comprehensive access to the profile pages of any members who had joined the



network (Alemán & Wartman, 2008). At the time of writing, the networks were no longer regularly used and raised privacy concerns due to the wide audiences had semi-permanent access to each other's profile pages (Papacharissi, 2009). The privacy concerns could be ameliorated using the proposed approach because, unlike corporate and regional networks, temporary networks would expire relatively soon and membership could be restricted to those who would reasonably interact daily after arriving at university. For example, a temporary network could be created for all housemates living in the same accommodation block at university or all coursemates studying the same course. Students in other accommodation blocks or studying other courses would not be members of that same temporary network therefore would be unable to access the profile page of students within that network.

Temporary networks could be an extension of group pages on some social network sites. Many students already join group pages for their specific accommodation block or courses prior to starting university (Alemán & Wartman, 2008). To maintain the comfort of students who wish to maintain their privacy, the access afforded by a temporary network should be detached from the membership of the group pages. Instead, students should voluntarily opt-into a joining temporary network after joining a relevant group page.

Verification would be required to avoid strangers joining temporary networks and gaining unauthorised access to the profile pages of students due to study courses or live in accommodation that they themselves are not. Gatekeepers, such as staff members or existing students in more senior academic years, could verify the names of students requesting access to a temporary network against a list of students due to be living in the given accommodation

block or studying the given course. Request to join the network would be denied if a stranger's name was not on the list. Alternatively, joining temporary networks could be via a password that universities send out with induction letters.

Students should also be able to rescind access to their profile to another person or the entirety of a temporary network particularly after a perceived violation of privacy or the negative behaviour of others within the network (e.g. abuse or bullying). Similarly, individuals should be removed from the network should their behaviour be inappropriate (e.g. abuse, trolling, sexual inappropriateness, selling on information) or identified as not warranting membership (e.g. they are not a student).

Overall, a temporary network approach balances privacy concerns and issues of unfriending alongside the potential benefits of allowing coursemates and housemates the ability to use a private passive strategy on social network sites in the weeks prior to starting university. However, further research is required into the visual interface that could allow students and university to easily implement and maintain temporary networks with minimal personal effort and appropriate levels of consent and understanding of the privacy ramifications.

The proposed relationship between the strategy used to get to know others, impression formation, and the experience of worry may also apply to other scenarios beyond university transition. The scenario of employees starting a new job or joining a new work team is similar to students starting university for the first time. Both scenarios involve people who may be interested in getting to know others on social network sites that they have not met previously and with whom future interaction is unavoidable. Unlike students at a university, new

employees may benefit by being discouraged from searching for people in their new team in the weeks prior to starting work with them. The social norm in the professional workplace may mean that employees feel uncomfortable establishing virtual friendship connections on social network sites prior to meeting face-to-face or having some other meaningful interaction. Without successfully friending others in their team or company, new employees may be unable to use a private passive strategy, including encounters such as viewing tagged photographs and status updates on Facebook, when getting to know their teammates. Instead, new employees would likely rely on public passive strategy, including encounters such as viewing profile images and publically posted messages on a social network site. Based on the findings in Studies 2 and 3, reliance on a public passive strategy could be counterproductive and result in new employees being less confident about their impressions and subsequently more worried about their ability to succeed at their new institution. Rather than promote their worries, new employees should be discouraged from searching for their future colleagues on social network sites until they have met each other face-to-face or established a relationship where it will be socially acceptable to befriend each other on a social network site.

Thus far, this discussion has focused on how confidence in impressions may be linked to worries. In Studies 2 and 3, mediation analysis indicated that a portion of the relationship between the strategies that students used and their worries remained unexplained by how confident the students were in their impressions. Consequently, other factors likely influence the link between the strategies that students use to get to know each other on social network sites and their worries about university. One factor may be the content of the impressions

that are formed. Existing research suggests that the content of messages that a person reads on a social network site is linked to his or her mood, self-esteem and life satisfaction (Coviello, Sohn, Kramer, Marlow, Franceschetti et al., 2014; Kramer, Guillory & Hancock, 2014; Valkenburg, Peter & Schouten, 2006). Positive messages tend to be associated with higher mood, self-esteem and life-satisfaction whereas negative messages tend to be associated with lower mood, self-esteem and life-satisfaction.

The findings of the focus groups in Study 1 tentatively support the proposal that a person's experience of worry is affected by the content of the impressions that they have on social network sites. Students described that some of their impressions made them either more worried or less worried about university. For example, some students reported being worried that they would not enjoy living with their new housemates after viewing their housemate's profile pages and inferring that they had dissimilar interests. Other students also described reporting being less worried about not succeeding on the course after chatting to their coursemates using the private messaging functions and learning that their coursemates' grades were similar to their own. In the examples, the sequence of events described by students assumes that students formed impressions about people at their university on social network sites, and that the nature of those impressions influenced the students' worries about university. However, the focus group design precludes definitive causal inferences from being made.

Despite the focus groups preventing causal inference, social comparison research can be used to propose a possible causal link between impression content and students' worries about university. In Chapter 3, it was suggested

that the egocentric impressions that students formed may have been the by-product of self-comparison processes. Research suggests that making comparisons with others can affect an individual's self-esteem depending on the nature of the comparison (Aspinwall, 1997; Buunk, Kuyper, & Van der Zee, 2005; Collins, 1996; Wills, 1981). When people compare themselves to others, they can deem that they are either superior (a downward comparison) or inferior (an upward comparison) to the people to whom they compare themselves (Gibbons, 1986). When making downward comparisons, people can perceive themselves as relatively better off than others which raises their self-esteem as they feel more successful and positive about themselves (Buunk & Gibbons, 2007; Gibbons, 1986; Johnson & Knobloch-Westerwick, 2014; Smith, 2000). In contrast, people making upward comparisons can perceive themselves as worse off than others which reduces their self-esteem as they feel less successful and more negative about themselves (Aspinwall, 1997; Buunk, Kuyper, & Van der Zee, 2005; Collins, 1996).

The upward/downward comparison research can be extrapolated to infer that students' self-esteem and worries are dependent on whether the egocentric impressions that students formed about their coursemates indicate that they are superior or inferior. When comparing themselves to others, students perceiving themselves as having a superior set of attributes (e.g. more intelligent) to their coursemates could experience an increase in self-esteem as they felt more positive about their relative positioning. Given that Festinger (1954) highlights that social comparisons help to assess abilities, the feeling of superiority could also have been accompanied by students experiencing less intense worries about university due to feeling abler to successfully tackle the forthcoming challenges,

social or academic, at university. In contrast, students perceiving themselves as having an inferior set of attributes (e.g. less intelligent) may experience more intense worries because they felt less able to successfully tackle the forthcoming challenges at university relative to others. The explanation remains tentative, however, therefore further research should verify that a students' experience of worries about university is affected by the content of the impressions that they form from social network sites in the weeks prior to starting university.

The proposal that worries are linked to social comparison processes is notable when considering how personality affects friending behaviour on social network sites. People scoring higher on narcissism personality inventories tend to have more liberal friending practices on social network sites and therefore tend to have a greater number of friend connections on the websites (Buffardi & Campbell, 2012; Lee, Moore, Park & Park, 2012). Narcissism is associated with a need for affirmation and a need to feel superior (Ames, Rose & Anderson, 2006; Morf & Rhodewalt, 2001; Raskin & Terry, 1988). Considering the social comparison research, narcissists may actively friend each other in order to engage in the social comparison processes that help them to affirm and assess their abilities prior to starting university. Compared to their peers, narcissists would be expected to be most likely to engage in egocentric impressions, to direct their attention to identity cues that are pertinent to the worries and concerns that they have about themselves including academic and social worries, and their lack of confidence in their impression is likely to be most strongly linked to their worries about university.

The degree of similarity may also attenuate the link between students' impressions and their worries reported in the studies in Chapters 4 and 5. In the

focus group study in Chapter 3, some students described that they were reassured after realising that their housemates and coursemates were similar to themselves rather than radically inferior or superior. For example, students were reassured that their coursemates were equally unclear on the requirements of the course as themselves. The finding is similar to those of a questionnaire study conducted by Ward and Day (1970) who determined that perceived similarity to others was linked to lower anxiety in university students. The focus group discussion can also be interpreted in the context of in-group identification. Individuals who perceive themselves as similar to a group of specific others tend to identify themselves as part of a group (e.g. an in-group) whereas individuals who perceive themselves as dissimilar to others tend to perceive themselves as being outside of that group (Castano, Yzerbyt, Paladino & Sacchi, 2002). During university, students who perceived themselves as being of similar intelligence to their coursemates may have identified more closely with a coursemates 'in-group' whereas students who perceived themselves of dissimilar intelligence may have perceived themselves as an outsider or a lone individual.

The relevance of in-group identification is apparent when considering the buffering effect that perceiving oneself as being within a group of similar people can have on anxiety and stress (e.g. Townsend, Kim & Mesquita, 2013; Wrightsman, 1960). Townsend (2013) reported that participants with a fear of public speaking felt less anxious when presented with the prospect of public speaking if they had previously interacted with people who had the same fear than if they had interacted with people who did not have the same fear. Applying Townsend's finding to university transition, it is possible that students who perceived themselves as having similar levels of uncertainty to others were less

worried in the face of their uncertainty than those who perceived themselves as having being much more uncertain or much less uncertain than their peers.

If perceived similarity did affect students' experiences of worry in Studies 2 and 3, then further research is required to disentangle the mechanism through which perceiving similar levels of uncertainty alleviated students' worries. One possible mechanism is that perceiving others as experiencing similar levels of uncertainty changed students' tolerance for uncertainty. Researchers have demonstrated that individuals have a situation-specific tolerance of uncertainty therefore an acceptable level of uncertainty in one scenario may significantly differ from an acceptable level of uncertainty in another scenario (Mahoney & McEvoy, 2012). During university transition, viewing others as experiencing similar levels of uncertainty may have set a norm that uncertainty is a standard part of the university experience, leading to an increase in individual students' tolerance for uncertainty about their own ability to succeed socially and academically. Research suggests that an increased tolerance for uncertainty is associated with a weakened intensity and propensity for worry (Buhr & Dugas, 2006; Dugas, Gosselin & Ladouceur, 2001; Ladouceur, Gosselin, & Dugas, 2000). Consequently, the normalisation of uncertainty amongst coursemates or housemates after encountering each other on group pages may have increased individual students' tolerance for uncertainty and in turn weakened the intensity and propensity of their worries about the academic and social success that they were uncertain of. Studies 2 and 3 did not measure students' tolerance of uncertainty therefore further research is required to support the prediction that perceived similarity will attenuate the link between uncertainty and worries within the context of impression formation.



## **Limitations**

The thesis contributed to understanding how students formed impressions on social network sites in isolation. However, there was no exploration of the interaction between the strategies that students used on social network sites and the opinions of other people. In Chapter 3, students in the focus groups indicated that they had discussed their impressions with their friends from home who were not attending the same university as them. Students described speaking to their friends from home and comparing descriptions of their housemates at their respective universities. Students also reported showing photographs of their new housemates to their friends from home in the weeks prior to starting university. Impression formation can be affected by the opinions and behaviour of other people (Chaiken, Liberman & Eagly, 1989; Lee, 2014). Walther et al. (2009) demonstrated that impressions of a person are influenced more by the behaviour and opinions of others than by the behaviour of the person that they are forming an impression about. Extrapolating Walther et al.'s finding to the findings of this thesis, it is possible that students' impressions about social targets were affected more by opinions of others than by the encounters the students had when using different strategies to get to know those social targets. However, no researchers have explored how impressions are affected by an interaction between the opinions of others people and the coherence of the social target that the impressions are formed about. Further research is required to understand how the findings outlined in this thesis are affected by others' opinions of a social target.

Additionally, Uleman (1999) and Uleman, Saribay and Gonzalez (2008) highlighted that there are core differences between conscious and automatic impressions. Intentional impression formation involves people consciously

forming impressions when prompted, as was the case when students were asked to think about their impressions during the studies reported in this thesis. Impressions were formed after encounters had taken place rather than at the time of the encounter. In contrast, automatic impression formation occurs when people unconsciously and spontaneously form impressions about others without being prompted such as students near-instantly forming an impression of their housemates and coursemates when viewing their profiles pages. The findings from this thesis only represent conscious impression formation. The cognitive effort that a person expends when forming impressions could be linked to how confident he or she is in those impressions of others (Hamilton & Sherman, 1996). The more cognitive effort that a person expends forming an impression about others, the more confident that person would be about his or her impression. Unlike conscious impression formation, impressions that are formed automatically tend not to involve much reconciliation of conflicting identity cues (Uleman, 1999). Given that impressions formed automatically would involve less cognitive effort than impressions formed consciously, the influence of social targets and students' use of strategies on how confident they are in their impression of others may be weaker when students form impressions at the time of an encounter as opposed to after the event.

Furthermore, this thesis did not explore the emotional valence of the impressions that students formed, namely whether the impressions were positive or negative. In Chapter 3, students reported forming both positive and negative impressions of people at their university. However, the differences between positive and negative impressions were not considered in either Study 2 or Study 3. Researchers have identified a negativity bias in impression formation insofar

that people place greater weight on the negative aspects of impressions and encounters than the positive aspects (Coovert & Reeder, 1990; Ito, Larsen, Smith & Cacioppo, 1998; Pratto & John, 1991; Skowronski & Carlston, 1989). Given that greater weight is placed on negative impressions, the extent that students were confident about their impressions may have been affected by an interaction between the coherence of the social target, the strategy used to get to know that target, and whether the impressions or encounters with that target were either positive or negative. No research has explored such a proposition therefore future research should explore how the content of impressions formed from social network sites, including whether those impressions are positive or negative, is linked to the experience of worry.

The findings in this thesis considered impressions and worries amongst a student population. Most students undergoing transition are in adolescence and young adulthood, aged between 17 and 21 years (UCAS, 2015). Adolescence and young adulthood are particularly prone to self-evaluation and is characterised by a malleable, less stable and uncertain sense of self or 'self-concept' (Brinthaup & Lipka, 2012). By virtue of their less stable sense of self, the students in the three studies reported in this thesis may have sought to make comparisons with others in order to reduce their uncertainty and understand themselves more. By necessity, people must form an impression about others in order to then make a comparison to themselves. The less stable self-concept in the adolescent and young adult student population may have exacerbated the prevalence of egocentric impressions and the role of social comparison during impression formation compared to samples of an older age (e.g. young adults who have graduated university; older adults with established careers).

The prevalence of egocentric impressions may also have been affected by the major transition to university as a separate influence from the malleable self-concept during adolescence. During major life transitions, people often experience uncertainty about their ability to tackle challenges that are new to them (Higgins, Loeb & Ruble, 1995; Martin, 2000). In response to the uncertainty about their ability to tackle the challenges, people are prone to compare themselves to others facing similar challenges in order to then gauge their own ability to tackle those challenges (Festinger, 1954). The uncertainty associated with major life transition experienced by students in the three studies reported in this thesis may also have exacerbated the egocentric nature of impressions and increased the extent that students engaged in self-comparison processes compared to individuals not undergoing a major life transition.

The role of adolescence and major life transitions means that the findings reported in this thesis require exploration in other samples to determine whether the findings can be generalised or not. In terms of the worries findings, populations not undergoing a major life transition may be more certain of their ability and will engage in less self-comparison when forming their impressions about others. As those impressions may be less egocentric than those not undergoing a major life transition, any impressions that they form about others could bear a weaker relation to themselves and may be less relevant to their worries about success. The same scenario can be explicated for adolescence too: an older adult whose self-concept is more stable may engage in less self-comparison when forming his impressions about others compared to adolescents and younger adults. Any impressions that the older adults form about others could bear a weaker relation to themselves and therefore be less relevant to

worries about their own performance than those with a more unstable, uncertain self-concept.

If the link between students' confidence and their impressions is affected by age and the presence of major life transitions, then there remain some scenarios in which the findings are likely to be generalised. It is possible that the findings derived from the university transition scenario can be generalised to other major life transition such as starting a new job, embarking on a new career path, moving to a new city or country, and entering a new friendship group after starting a new romantic relationship. Each of those experiences may involve an person being less certain about his or her ability to succeed either socially or in terms of other outcomes specific to the scenario in question. However, further research is required to explore whether the findings from the studies reported in this thesis can extrapolated to those scenarios.

## **Conclusion**

This thesis provided a greater understanding of how students form impressions about each other on social network sites prior to starting university. The improved understanding has led to suggestions for improving how universities and students' unions might able to support students transition to university. Although focusing on university transition, this thesis also contributed to an improved understanding of impression formation during early relationships on social network sites more generally.

Impression formation is a complex, multi-dimensional psychological process with many antecedents and many outcomes. However, social network sites have added to the complexity by offering people new opportunities and

constraints within which to construct their identities for others to then form impressions about. The websites have also offered people new opportunities and constraints to access the identities that people created. Impression formation researchers are being challenged to update and develop the theory to account for the impact of the new opportunities and constraints that people are afforded on social network sites.

In the studies reported in this thesis, findings emerged which could have implications for theories of impression formation. First, theory needs to account for the interaction between the coherence of the social target about whom impressions are being formed and the type of strategy that people use when getting to know that social target. Second, impression formation theory needs to account for how the strict use of privacy settings on social network sites affects the strategies that people use when trying to get to know each other on the websites. For the latter finding, the thesis played a role not just in suggest additions for impression formation theory to account for the use of social network sites but to account for the changes in use of privacy settings in social network sites.

By exploring an applied scenario, this thesis has proposed updates to theory to more closely reflect a person's day-to-day experience of impression formation. Impression formation theory needs to recognise that people form impressions on social network sites about multiple types of social targets including groups of people. Impression formation theory may also need to account for a link between how confident people are about their impressions and how worried people are. However, the proposed explanations cannot be verified using the data currently available in the studies conducted for this thesis. Further

research should move from proposing explanations concerning impression formation on social network sites to testing the proposed explanations.

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## Appendices

### *Appendix A.* Consent form for focus group study (Study 1).



#### Facebook Study

#### Consent Form

##### **Purpose and information**

Thank you for taking the time to come along. In the next 60 to 90 minutes, you will be asked to discuss how you used Facebook to meet other people at your university in the weeks immediately prior to starting university.

We will discuss what you did, who you met, and what you got from the experience. Hopefully, this will be an enjoyable and fun chat!

##### **You should be aware that:**

- We will chat for between 60 and 90 minutes
- There are no right or wrong answers – I'm just looking for your experiences!
- You can leave the focus group at any time, or refuse to answer any questions
- The focus group be recorded - quotes from our discussion may be included in final write-up of the study. However, your identities and those of anybody discussed will be completely anonymised and non-identifiable.
- You must be aged 18 years or older, and a first year undergraduate to take part

If you have any questions then feel free to ask them now.

If you acknowledge the above and agree to take part in the focus group, please complete the below:

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

*Appendix B.* Demographic information form for focus group study reported in Chapter 3.

Facebook study		
If you could very briefly fill in answers to the following questions. Your response is voluntary, confidential and only for demographic purposes.		
Age (now)		
Age (at starting university)		
Gender		
What country are you from?		
What course are you currently studying?		
Is this your first time at university?	Yes      No      (please circle)	
Do you use any other Social Network Sites?	(e.g. Google +, Twitter, MySpace)	
How long have you been using Facebook for? (please tick most appropriate)	Less than 1 year	
	Less than 2 years	
	Less than 3 years	
	Less than 4 years	
	Less than 5 years	
	More than 5 years	

*Appendix C. Debrief sheet for focus group study (Study 1).*



Facebook Study – debrief about the study

Thank you for taking part in the focus group. I really hope that you enjoyed the discussion ☺ We chatted about how you used Facebook in the weeks immediately prior to starting university. The main purpose of the study was to get an insight into the types of impressions that first years students are forming about each other in the weeks prior to arrival at university.

At university, it has been tradition that the first time that new housemates and coursemates meet each other was on the first day of university. However, students are now using Facebook or other Social Network Sites to meet each other before even leaving for university! Research does not currently understand much about the impressions that students form about each other after having only met on Facebook. The current study aims to begin filling that gap.

The next steps in my research are to examine how these first impressions might be linked to the anxiety that students experience just before coming to university. As you are likely more than aware, university is a whole new social world whereby you meet a lot of new people – it is only natural that one would be worried about this new environment! Perhaps meeting each other on Facebook will make people less worried about university, but then again perhaps it will make people more worried – these are the types of questions that your focus group will begin to help disentangle.

I have mentioned some extra readings below if you are interested. However, more importantly... on the reverse of this sheet are some really good contacts if you are experiencing any difficulties at university. I hope that the focus group has not caused you any distress or discomfort, but you are welcome to discuss these with those services (and of course myself if you wish).

Please do keep in contact - don't hesitate to email me if you have any questions, concerns or want to chat about something that came up during the study. My email address is [j.t.doodson@bath.ac.uk](mailto:j.t.doodson@bath.ac.uk)

Take care,

A handwritten signature in black ink, appearing to read 'James Doodson'.

James Doodson. Department of Psychology. University of Bath

*If you're interested in my research area, then below two really interesting readings.*

Alemán, A., M. M., & Wartman, K. L. (2009). *Online Social Networking on Campus: Understanding What Matters in Student Culture*. New York, NY: Routledge

Madge, C., Meek, J., Wellens, J., & Hooley, T. (2009), Facebook, social integration and informal learning at university: 'It is more for socialising and talking to friends about work than for actually doing work'. *Learning, Media and Technology*, 34(2), 141-155

### Post-study support

Hopefully, the study did not cause you any stress or concern. However, it is natural to be nervous and worries about university. If you do wish to speak to somebody about any concerns that you may have then there are a wide range of services available:

- **University of Bath Student Support Services (open Mon-Fri 10am-4pm)**
  - Located in 4 West, Level 2 (next to Tiki Café)
  - Email: [listening@bath.ac.uk](mailto:listening@bath.ac.uk)
  - Phone: 01225 38 5538
  - Website: <http://www.bath.ac.uk/studentservices/>
- **University of Bath Student Union Nightline (term-time Weds to Sunday, 8pm-8am)**
  - Telephone: 01225 383030
  - Website: <http://www.bathstudent.com/welfare/nightline/>
  - You can also use Instant Messaging and Skype, details at the above webpage
- <http://www.thestudentroom.co.uk/> (particularly visit the Health and Relationships page) – advice webpage and forums designed for students, dealing with common student concerns
- <http://www.healthyplace.com/> - A community of people providing mental health information, support and the opportunity to share experiences helpful to others. Information on psychological and psychiatric medication from both a consumer and expert point of view. Active chatrooms, hosted support groups, people who keep online journals, diaries, mental health news, mental health videos, online documentary films, mental health radio and more

If you're having experiencing tensions and difficulties with other people, then there is support out there. Perhaps get in contact with one of the below to ask for advice:

- **The Resident Tutor Service** (each university hall as an dedicated group of resident tutors) <http://www.bath.ac.uk/accommodation/welfare/resident/index.html>
- **The University Mediation Service**  
<http://www.bath.ac.uk/equalities/activities/mediation/>

Other forms of more general support are available. Below are three excellent support services available should you decide that you wish to speak to somebody from outside of the university:

- **UK Samaritans**
  - Telephone: 08457 90 90 90 (open 24 hours)
  - E:mail: [jo@samaritans.org](mailto:jo@samaritans.org); Website: <http://www.samaritans.org/>
- **UK SupportLine**
  - Telephone: 01708 765200 (hours vary so ring for details)
  - Email: [info@supportline.org.uk](mailto:info@supportline.org.uk); Website: <http://www.supportline.org.uk/>
- **NHS Direct** – for health advice and reassurance
  - Telephone: 0845 46 47 (open 24 hours; the 8 digit telephone number is correct!)
  - <http://www.nhsdirect.nhs.uk/>

*Appendix D.* Recruitment advertisement placed on university webpage (Study 1).

## First year undergraduates: did you first meet your current housemates or coursemates on Facebook? [£10 each]

Are you a first year undergraduate? Before arriving at university last September, had you already met (or stalked!) some of your housemates or coursemates on Facebook?

James Doodson, a researcher in the Department of Psychology, is looking to hold informal and relaxed focus groups with first year undergraduates who live in the same flat.

As a thank you, James will pay £10 to you and each of your housemates that take part. Why not take a break from revision and get some cash?

The group chats will be 60 to 90 minutes long, discussing your experiences of meeting each other on Facebook before starting university. Each focus group will consist of 5 to 8 people that you can organise yourself, at place and time that suits you (daytime, evening or weekend!).

If you're interested, then please e-mail James at [j.t.doodson@bath.ac.uk](mailto:j.t.doodson@bath.ac.uk) with your name and some willing housemates!

*Appendix E.* Recruitment advertisement emailed to all students in university accommodation for the focus group study (Study 1).

SUBJECT: £10 to talk about meeting each other on Facebook

Before arriving at university last September, had you already met some of your housemates or coursemates on Facebook?

If yes, I'm holding informal and relaxed focus groups with first year undergraduates living in the same flat or near each other. The group chats will discuss your experiences of meeting each other on Facebook in the weeks prior to beginning university. These focus groups form part of my Psychology PhD studies.

Each focus group will be 60 to 90 minutes long, consisting of between 5 and 7 people that you can organise yourself.

If you're interested or have any questions, just reply to this email so we can organise a a place and time that suits you all (daytime, evening or weekend!).

Take care.

James Doodson  
PhD Student, Department of Psychology

Appendix F. Screenshot of Demographics questionnaire (Study 2).

### University research study



 121  
people



0%  100%

**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

Please answer the following questions which are intended to find out a little bit more about you.

**Are you about to start your first year of a new degree or course at university (i.e. a fresher)?**

☐ Yes
 ☐ No

**What is your gender?**  
Choose one of the following answers

☐ Female  
☐ Male  
☐ No answer

**Age (you must be aged 16 years or older to take part in this study)**

years  
Only numbers may be entered in this field

**What university are you about to attend/enrol/matriculate?**  
Type the first few letters of your university name, then choose from the list. If your university name does not appear, type the full name of your university.

**What is the name of the degree/course that you are about to begin studying?**

**What type of degree/course are you about to study?**

☐ Foundation year  
☐ Undergraduate (e.g. BSc)  
☐ Postgraduate (i.e. a taught Masters)



☐ Postgraduate (i.e. a research PhD)
   
☐ Other (please specify)

**Is this your first degree/course at that university?**  
**Choose one of the following answers**

☐ Yes
   
☐ No
   
☐ No answer

**Where are you from? (choose most appropriate)**  
**Choose one of the following answers**

☐ United Kingdom
   
☐ Europe
   
☐ Outside of Europe
   
☐ No answer

**What (if any) Social Network Sites do you use?**  
**Check any that apply**

☐ Facebook
   
☐ MySpace
   
☐ Twitter
   
☐ LinkedIn
   
☐ Bebo
   
☐ Orkut
   
☐ Google+
   
☐ Other (specify as many as you wish)

**Some people use Social Network Sites to meet, view or find out more about people at their university (e.g. their new housemates, coursemates). Have you done this at all?**  
**Choose one of the following answers**

☐ Yes
   
☐ No
   
☐ I do not use social networking sites

**Roughly, what date will you be starting university?**  
**The date does not need to be exact. If you do not know then leave the answer blank.**

*Format: dd/mm/yyyy*

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Exit and clear survey

*Appendix G.* Screenshot of Trait anxiety questionnaire (Study 2; Ree, French, MacLeod & Locke, 2008).

### University research study

Send
120 people
Tweet

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**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

This is the last page! Phew :)

Below are another list of statements which can be used to describe how people feel.

Rate the extent to which each statement indicates how often, in general, the statement is true of you (generally, not necessarily right now).

**In general...**

My heart beats fast.	Please choose...
My muscles are tense.	Please choose...
I feel agonized over my problems.	Please choose...
I think that others won't approve of me.	Please choose...
I feel like I'm missing out on things because I can't make up my mind soon enough.	Please choose...
I feel dizzy.	Please choose...
My muscles feel weak.	Please choose...
I feel trembly and shaky.	Please choose...
I picture some future misfortune.	Please choose...
I can't get some thought out of my mind.	Please choose...
I have trouble remembering things.	Please choose...
My face feels hot.	Please choose...
I think that the worst will happen.	Please choose...
My arms and legs feel stiff.	Please choose...
My throat feels dry.	Please choose...
I keep busy to avoid uncomfortable thoughts.	Please choose...
I cannot concentrate without	

irrelevant thoughts intruding.	Please choose... ▾
My breathing is fast and shallow.	Please choose... ▾
I worry that I cannot control my thoughts as well as I would like to.	Please choose... ▾
I have butterflies in the stomach.	Please choose... ▾
My palms feel clammy.	Please choose... ▾

[<< Previous](#)[Submit](#)[Exit and clear survey](#)

*Appendix H.* Intensity of student worries about university questionnaire (Study 2; Brooks, 2005).

### University research study

Send

James Doodson, Oliver Thomas and 118

Tweet

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**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

As mentioned, worries are a common and completely natural part of the weeks prior to starting a new university course or degree.

Below are some of the most common concerns of university students. Rate the degree to which each issue worries you by selecting the appropriate option from each drop-down box (0 = Not at all concerned about the issue; 4 = extremely concerned about the issue)

I will not have enough money to pay for my education	Please choose...
I will not be able manage my time for studying	Please choose...
I will have difficulty making friends	Please choose...
I will have difficulty in relationships	Please choose...
I will not be smart enough	Please choose...
I will become homesick	Please choose...
I will not feel safe where I am living	Please choose...
I will not do well in my classes	Please choose...
I will not get enough sleep	Please choose...
I worry I did not pick the right	Please choose...

university	
I am worried that I might abuse alcohol	Please choose...
I will have difficulty finding a major I like	Please choose...
I will have a hard time fitting in socially	Please choose...
I will have trouble getting along with my housemates	Please choose...
I will feel inferior to others	Please choose...
I will have a hard time leaving my family behind	Please choose...
I will have a hard time keeping up with all of my academic work	Please choose...
I will have a hard time leaving my friends behind	Please choose...
It will be hard for me to find a new peer group that I can connect with	Please choose...
I will have a hard time eating properly	Please choose...
I will become lonely	Please choose...
I will have difficulty balancing studying and extracurricular activities	Please choose...
I will be have trouble managing university-related stress	Please choose...
I will have	

difficulty balancing work and studying	Please choose... ▾
I will become sad or depressed	Please choose... ▾

<< Previous      Next >>      Exit and clear survey

*Appendix I.* Free-text questionnaire asking investigating students' worries about university (Study 2).

University research study

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**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

I am interested in finding out about your experiences just before starting a new course or university, including any apprehensive feelings and worries that you may be experiencing. Worries are a common and completely natural part of the weeks prior to starting a new university.

In the below grid, please:

- 1) List up to *five* main worries that you have specifically about university
- 2) For each worry you list, rate how worried you are about that worry
- 3) Rate how worried you are on other two worries at the end of the list

The worries might be entirely specific to you. The order of the worries is unimportant. Remember your contribution to the study is anonymous, confidential and unidentifiable.

If you do not have any worries, please click the check box at the bottom of the page and then click 'Next'

Worries	Rating of worry
<input type="text"/>	Please choose... ▾
<input type="text"/>	Please choose... ▾
<input type="text"/>	Please choose... ▾
<input type="text"/>	Please choose... ▾
<input type="text"/>	Please choose... ▾
<b>All other worries about going to university not mentioned above</b>	Please choose... ▾
<b>How worried are you about going to university in general?</b>	Please choose... ▾

☐ I do not have any worries about university

<< Previous

Next >>

Exit and clear survey

*Appendix J. Codebook for categories and codes emerging from free-text questionnaire investigating students' worries about university (Study 2).*

Code (category in bold)	Description	Inclusion and exclusion criterion	Examples
<b><i>Existing friends: Comments on the effect that university will have on relationships that existed prior to starting university</i></b>			
Acquaintances from home attending same university	Comments on the presence of existing friendships from home that will also be attending the same university.	<ul style="list-style-type: none"> <li>• Disliking acquaintances attending the same university</li> <li>• Unwanted contact with acquaintances</li> <li>• General statements about existing acquaintances</li> <li>• Only pertains to relationships that existed prior to starting university and where the pair attends the same university.</li> </ul>	"I know somebody who is going to be there "
Maintaining existing friendships	Concerns regarding new difficulties in maintaining contact and meaningful relationships that existed prior to starting university.	<ul style="list-style-type: none"> <li>• Fewer physical meetings</li> <li>• Irregular contact</li> <li>• Weakening of the relationship strength</li> <li>• Not being able to see the family pet</li> <li>• General statements relating to friends</li> <li>• Pertains to all relationships apart from romantic relationships, and where the pair is not attending the same university.</li> </ul>	"Missing friends" "Losing touch" "Not seeing everybody from school"
Maintaining existing romantic relationships	Comments on the stability and experience of existing romantic relationships	<ul style="list-style-type: none"> <li>• Fewer physical meetings</li> <li>• Dissolution of relationship (e.g. breakup)</li> <li>• Irregular contact.</li> <li>• Experiencing loneliness</li> <li>• The ability of the other partner to emotionally cope.</li> <li>• Cheating by either partner.</li> <li>• Only pertains to romantic relationships.</li> </ul>	"Cheating" "Breaking up"



***Financial outcomes: Comments on employment and money during and after university***

Employment	Comments on securing employment during term-time, after university, or during the placement year	<ul style="list-style-type: none"> <li>• Enjoyment or suitability of jobs</li> <li>• The process of searching or applying for jobs</li> <li>• Job availability in the area local to the university</li> <li>• Job availability in the wider market</li> <li>• Securing employment</li> <li>• General statements relating to job</li> </ul>	<p>“Getting a job”</p> <p>“Finding a job after uni”</p>
Lack of money	Comments on financial stability and the effects of financial stability	<ul style="list-style-type: none"> <li>• Accruing debt</li> <li>• Difficulty paying for accommodation, academic resources, food, social activities or other resources</li> <li>• Balancing multiple money demands</li> <li>• Being unable to take part in activities due to lack of money</li> <li>• General statements relating to finance</li> <li>• Does not pertain to employment</li> </ul>	<p>“Not having enough money”</p> <p>“Enough money to go out”</p> <p>“Debt”</p>

***New social relationships: Comments on the experience of interacting with people at the new university***

Age	Comments on age impacting the university experience.	<ul style="list-style-type: none"> <li>• Integrating with others of different age</li> <li>• Unable to legally take part in social activities due to age (e.g. drinking alcohol under age of 18)</li> <li>• General statements regarding age</li> </ul>	<p>“Everybody else on the course is younger”</p> <p>“Being 17”</p>
Evaluation by others	Comments on evaluations made about the student by new acquaintances housemates, coursemates, sportsmates and others after having arrived at	<ul style="list-style-type: none"> <li>• Others’ negative opinion of the student</li> <li>• Others’ positive opinion of the student</li> <li>• Prejudice including homophobia and racism</li> <li>• Uncertainty of others’ opinions of the student</li> <li>• Pertains only to relationships after arriving at</li> </ul>	<p>“Will they like me?”</p> <p>“Nobody will like me”</p> <p>“People treating me</p>

	university.	university including with new housemates, coursemates and sportsmates	different because I'm gay" "Won't like my housemates" "The people"
Evaluation of others	Comments on evaluations made by the student about new acquaintances including housemates, coursemates, sportsmates and others after having arrived at university.	<ul style="list-style-type: none"> <li>• Disliking other individuals</li> <li>• Uncertainty about positive opinions of others</li> <li>• General statements about 'people'</li> <li>• Pertains only to relationships after arriving at university including with new housemates, coursemates and sportsmates</li> </ul>	
Initiation and maintenance of new friendships	Comments on the outcome, experience and barriers to initiating and maintaining new relationship with housemates, coursemates, sportsmates and others after having arrived at university.	<ul style="list-style-type: none"> <li>• Absence of friends</li> <li>• Initiating new friendships</li> <li>• Shyness or social anxiety</li> <li>• Success of social relationships</li> <li>• Pertains only to relationships after arriving at university including with new housemates, coursemates and sportsmates</li> </ul>	"Making friends" "Getting along" "No friends" "Scared to talk to people"
Joining sports clubs	Comments about the experience and demands of joining university sports clubs.	<ul style="list-style-type: none"> <li>• Securing a place on a team, including trials</li> <li>• The experience of sports 'initiations'</li> </ul>	"Football trials" "Rugby initiation"
Language barriers	Comments about difficulties or the experience of communicating in a foreign language.	<ul style="list-style-type: none"> <li>• English being a foreign language</li> <li>• Difficulty communicating with others due to speaking a foreign language</li> <li>• General statements about language</li> </ul>	"English" "Not my first language"
Lecturers	Comments on interaction with and evaluations of lecturers	<ul style="list-style-type: none"> <li>• Difficulty achieving a friendly relationship with lecturer</li> </ul>	"Getting on with the lecturer"

	including their personality and demeanour.	<ul style="list-style-type: none"> <li>• Unfamiliar personalities or styles</li> <li>• General statements regarding lecturers</li> <li>• Pertains only to lecturers' personality and demeanour rather than academic content</li> </ul>	<p>"Teacher being mean"</p> <p>"Not liking lecturers"</p>
New romances	Comments on the development of new romances.	<ul style="list-style-type: none"> <li>• Finding a new romantic partner</li> </ul>	"Getting a new boyfriend"
Peer pressure	Comments about pressure to partake in activities by others.	<ul style="list-style-type: none"> <li>• General statements about pressure to take part in activities</li> <li>• Does not pertain to alcohol, drugs or sex.</li> </ul>	"Peer pressure"
Routines of housemates	Comments about adjusting to, managing and experiencing routines in a shared household.	<ul style="list-style-type: none"> <li>• Cleanliness of housemates</li> <li>• Cooking schedules</li> <li>• Excessive noise generated by housemates</li> <li>• Sharing access to a limited number of showers</li> </ul>	<p>"Housemates being clean"</p> <p>"Being woken up by housemates"</p> <p>"Sharing a shower"</p>
<b><i>Physical and psychological health: Comments on the impact or experience of physical, psychological and emotional health at university</i></b>			
Adjusting to independence	Comments on the experience of independence whilst at university.	<ul style="list-style-type: none"> <li>• Greater independence at university compared to home.</li> <li>• General statements about independence</li> </ul>	<p>"Being more independent"</p> <p>"Independence"</p> <p>"Can't rely on anybody else"</p>
Adjustment in general	Comments on the experience and adjustment to change in general.	<ul style="list-style-type: none"> <li>• General statements about change</li> </ul>	"All the changes"
Alcohol/drugs/sex	Comments on encounters, experiences and pressures of alcohol, drugs and sex.	<ul style="list-style-type: none"> <li>• Excessive alcohol consumption</li> <li>• Inexperience with alcohol consumption</li> <li>• Losing virginity</li> </ul>	<p>"Getting too drunk"</p> <p>"I'm a virgin"</p> <p>"Drugs"</p>

		<ul style="list-style-type: none"> <li>• Pressure to drink alcohol and take drugs</li> <li>• General statements about encountering alcohol or drugs</li> </ul>	
Athletic fitness	Comments on maintaining athletic fitness whilst at university.	<ul style="list-style-type: none"> <li>• Maintaining fitness</li> <li>• Mention of gym</li> </ul>	“Going to the gym as often as I can”
Eating healthily	Comments on maintaining a health diet whilst at university.	<ul style="list-style-type: none"> <li>• Avoiding unhealthy food</li> <li>• Eating healthy food</li> </ul>	“Eating healthy” “Not eating crap”
Enjoyment of university experience	Comments on emotional aspects of the general university experience.	<ul style="list-style-type: none"> <li>• General statements about happiness at university</li> <li>• General statements about unhappiness at university</li> <li>• General statements about feelings</li> </ul>	“Being happy”
Illnesses	Comments on pre-existing and ad-hoc illnesses whilst at university.	<ul style="list-style-type: none"> <li>• Accessing treatment for pre-existing health conditions</li> <li>• Worsening severity of pre-existing health conditions</li> <li>• General statements about the onset of ad-hoc illness</li> </ul>	“Finding the drugs I need to live” “Getting sick”
Loneliness	Comments about the broad emotional experience of loneliness.	<ul style="list-style-type: none"> <li>• General statements about loneliness</li> </ul>	“Getting lonely”
Practicing religion	Comments on day-to-day practice of religion	<ul style="list-style-type: none"> <li>• General statements about religion</li> </ul>	“Praying”
Safety	Comments on safety in university accommodation or the city more broadly	<ul style="list-style-type: none"> <li>• Safety of university accommodation</li> <li>• Safety of the broad city</li> <li>• General statements about safety</li> </ul>	“Being safe in my room” “Safety”
Sleeping	Comments on sleep quality and ability to sleep whilst in university accommodation	<ul style="list-style-type: none"> <li>• General statements about sleeping</li> </ul>	“Not getting enough sleep”

***Pragmatics of university: The experience and process of dealing with day-to-day tasks not pertaining to social relationships, academic achievement and health***

Accommodation type	Comments on the physical aspects of the university accommodation.	<ul style="list-style-type: none"> <li>• Number of people living in an accommodation block</li> <li>• Size of the room in accommodation</li> <li>• General statements about living in university accommodation</li> <li>• Does not pertain to housemates or other individuals involved in university accommodation.</li> </ul>	Number of people living in an accommodation block
Administrative requirements	Comments on completing administrative requirements of university including enrolment paperwork and online registration	<ul style="list-style-type: none"> <li>• Completing enrolment and registration paperwork</li> </ul>	“Filling out the online forms”
City size	Comments evaluating the size of the city.	<ul style="list-style-type: none"> <li>• Size of the city being too small</li> <li>• Size of the city being too large</li> <li>• Does not pertain to issues of unfamiliarity</li> </ul>	<p>“City is small”</p> <p>“London is huge”</p>
Familiarity with local area	Comments on familiarity with a new, unknown city and the facilities available in the city.	<ul style="list-style-type: none"> <li>• Finding the grocery store</li> <li>• Navigating an unfamiliar city</li> <li>• General unfamiliarity with a new city</li> </ul>	“Finding my way around”
Immigration visa	Comments on immigration visas.	<ul style="list-style-type: none"> <li>• General statements about immigration visas.</li> </ul>	“VISA”
Organising accommodation	Comments on organising accommodation and housemates to live near university.	<ul style="list-style-type: none"> <li>• Finding housemates</li> <li>• House hunting</li> <li>• General statements about finding houses</li> <li>• Pertains to both housing in the first year and</li> </ul>	<p>“Finding housemates”</p> <p>“Somewhere to live”</p>

Pragmatics of daily routine	Comments on the inexperience and unfamiliarity with daily chores and routine including cooking and washing.	<p>subsequent years.</p> <ul style="list-style-type: none"> <li>• Finding a location to do laundry</li> <li>• Inexperience with washing clothes</li> <li>• Inexperience with cooking</li> </ul>	<p>“Doing my washing”  “Need to learn how to cook”  “My mum usually washes my clothes”  “Cooking for myself”  “Packing”  “Getting everything done before I go”</p>
Preparing to move	Comments on the process of moving possessions and tying up loose ends in the home city when moving to university.	<ul style="list-style-type: none"> <li>• General statements about packing or unpacking</li> <li>• General statements about tying loose ends</li> </ul>	
Separation from possession	Comments on being separated from and leaving possessions in home city when living in university accommodation.	<ul style="list-style-type: none"> <li>• Possessions being located at home rather than at university</li> <li>• Not having access to creature comforts of home</li> <li>• Not being near pets</li> </ul>	<p>“Not having my things with me”  “Not seeing my dog”</p>
Travel to/from university	Comments on the experience and impacts on day-to-day travelling to and from university from accommodation.	<ul style="list-style-type: none"> <li>• Living far from university</li> <li>• The process of getting from accommodation to university</li> <li>• Pertains only to travel whilst at university.</li> </ul>	<p>“Living at home so I have to drive to uni”  “Having to take a bus to school”</p>
<b><i>Tackling the academic course: The experience, demands and outcomes of the academic course of study at university</i></b>			
Balancing external priorities	Comments on ability to manage course workload alongside priorities outside of the course.	<ul style="list-style-type: none"> <li>• Balancing social and academic priorities</li> <li>• Pertains only to priorities external to the course</li> </ul>	<p>“Studying and going out”</p>

Course enjoyment	Comments on emotions whilst experiencing the course	<ul style="list-style-type: none"> <li>• Happiness on course</li> <li>• Disliking the course</li> </ul>	“Enjoying the course”
Course length	Comments on the length of time taken to complete the course	<ul style="list-style-type: none"> <li>• General statements about the length of time at university</li> </ul>	“3 years”
Course workload	Comments on the substantial nature and experience of managing course-related work.	<ul style="list-style-type: none"> <li>• Excessive workload</li> <li>• Being stressed by too much work</li> <li>• Balancing multiple concurrent assignments</li> <li>• Pertains only to workload on the course</li> </ul>	“Too much work”
Failure	Comments on ability to succeed or fail on the course	<ul style="list-style-type: none"> <li>• Grades on assignments</li> <li>• Passing exams</li> <li>• The final grade of the university degree</li> <li>• Failing or being removed from the course</li> <li>• Grades being inferior to coursemates</li> <li>• Leaving or ‘dropping out’ of the course</li> <li>• General statements about motivation</li> </ul>	“My grades” “Fail” “Dropping out” “Everybody on the course being better than me”
Maintaining motivation	Comments on student’s ability to maintain motivation for the course whilst at university.		“Keep motivated”
Teaching	Comments on the experience and adjustment to the university style of teaching and learning support services.	<ul style="list-style-type: none"> <li>• Adapting to new teaching style</li> <li>• Learning disabilities and support available to people with learning disabilities</li> <li>• General statements about lectures</li> <li>• Excludes comments about lecturers’ personality and demeanour</li> </ul>	“Lectures” “Dyslexia” “Teaching style”
Unclassifiable course issues	Comments about general and otherwise unclassifiable aspects of the course.	<ul style="list-style-type: none"> <li>• Other unclassifiable statements about course</li> </ul>	“The course”

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*Appendix K.* Frequency of categories and codes emerging from free-text questionnaire investigating students' worries about university (Study 2).

Category (subcategory indented)	Responses assigned (1074 responses)	
	%	N
<i>Existing friends</i>	10.38	109
Acquaintances from home attending same university	0.29	3
Maintaining existing friendships	9.14	96
Maintaining existing romantic relationships	0.95	10
<i>Financial outcomes</i>	13.72	144
Employment	1.72	18
Lack of money	12.00	126
<i>New social relationships</i>	32.10	338
Age	0.76	8
Evaluation by others	5.30	68
Evaluation of others	8.47	91
Initiation and maintenance of new friendships	12.19	131
Joining sports clubs	0.96	10
Language barriers	1.71	18
Lecturers	0.48	5
New romances	0.19	2
Peer pressure	0.19	2
Routines of housemates	1.24	13
<i>Physical and psychological health</i>	8.70	91
Adjustment in general (no further details offered)	0.38	4
Alcohol/drugs/sex	1.90	20
Athletic fitness	0.38	4
Eating healthily	0.86	9
Enjoyment of university experience	1.82	19
Illness	0.20	2
Independence	2.38	25
Loneliness	0.10	1
Practicing religion	0.19	2
Safety	0.38	4
Sleeping	0.10	1
<i>Pragmatics of university</i>	9.45	99
Accommodation type	0.48	5
Administrative requirements	0.96	10
City size	0.19	2



Familiarity with local area	3.24	34
Immigration visa	0.29	3
Organising accommodation	0.10	1
Pragmatics of daily routine	2.76	29
Process of moving or preparing to move	0.76	8
Separation from possessions	0.48	5
Travel to/from university	0.19	2
<i>Tackling the academic course</i>	25.63	269
Balancing external priorities	2.57	27
Course enjoyment	4.38	46
Course length	0.29	3
Course workload	3.24	34
Failure	13.53	142
Maintaining motivation	0.19	2
Teaching	0.67	7
Unclassifiable course issues	0.76	8

*Appendix L.* Questionnaire asking about the groups of people that students encounter on social network sites (Study 2).

### University research study

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**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

You mentioned that you have found, viewed or interacted with people from your university via a social network site.

For each group listed, please indicate roughly how many people in that group that you have found, viewed (i.e. i.e. profile pages, photos, etc) or interacted using a social network site.

Enter 0 (zero) if you have not found anybody from that group.

If you have interacted with other groups that aren't listed, you can add these groups using the + (add/plus) button.

You do not need to be exact - use your memory.

		Roughly how many people in that group have you found using a social network site?
1)	Your new housemates	<input type="text"/>
2)	Your new coursemates	<input type="text"/>
3)	People in sports teams or societies in which you may take part	<input type="text"/>
4)	People from home that are going to the same university	<input type="text"/>
5)	Existing students (i.e. people who are in their 2nd/3rd years of university)	<input type="text"/>

[+]

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Exit and clear survey

*Appendix M.* Questionnaire asking about students' encounters with others on social network sites questionnaire (Study 2).

University research study

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**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

Consider the people from your university that you have already found or interacted with using a social network site.

How often have you used each of the below techniques to find out about those people from your university?

If a technique is not possible using your social network site, choose the 'Not possible...' option from the list.

If you have used other techniques for finding out about people at your university, you can add these techniques by clicking the + (add/plus) button at the bottom.

	How often did you use the following techniques with people at your new university?	Rating
1)	Read messages that they posted in an area that anybody else can see (i.e. in a group, event, hashtag)	Please choose...
2)	Looked at their profile pictures or buddy pictures	Please choose...
3)	Looked at photos in which they are tagged	Please choose...
4)	Read comments that they have written on their photos	Please choose...
5)	Looked at content that they have shared on their own profile page or account (i.e. status updates, wall posts, shared links)	Please choose...
6)	Looked at their listed preferences (e.g. their 'likes', hobbies, activities, 'About me' sections)	Please choose...
7)	Looked at a list of your mutual friends	Please choose...
8)	Sent a message to one of their friends asking about them (only online)	Please choose...
9)	Spoken offline (face-to-face/phone) to one of their friends about them	Please choose...
10)	Looked at public messages or other content that their friends have sent or written about them	Please choose...
11)	Asked them questions about themselves in an area where other people can see what you've asked (i.e. in a group, event, hashtag)	Please choose...
12)	Asked them questions about themselves in a private area (i.e. private/direct message or private chat)	Please choose...

13)	Arranged to meet face-to-face or call each other via telephone before university starts	Please choose...
14)	You told them things about yourself first, and they replied by telling you things about themselves without you asking	Please choose...
15)	Searched for information about them using the social network site's search (i.e. Facebook Search)	Please choose...
16)	Searched for information about them using a general social engine (i.e. Google; Bing; Yahoo)	Please choose...
17)	Searched for and read messages/content that they have posted on a different social network	Please choose...
18)	<input type="text"/>	Please choose...

[+]

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*Appendix N.* Confidence in impressions questionnaire (Study 2; Clatterbuck, 1979).

University research study

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**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

You may not have seen or interacted with anybody at your university. However, you may have ideas or predictions about people at your university, their thoughts, how they will behave, whether you will like each other.

Think very generally about all the types of people that you are likely to meet at university (i.e. future coursemates or housemates, staff, students in higher years, friends going to the same university, students on sports teams or societies groups).

Now, rate each of statements using a scale from zero (not at all/a total guess) to ten (completely certain). Continue to think very generally about people at your university rather than about a specific group of individuals.

How well do you think you understand people at your university?	Please choose...
How confident are you of your general ability to predict how people at your university will behave?	Please choose...
How certain are you about how well people at your university like you?	Please choose...
How accurate do you think you are at predicting the things that people at your university find important?	Please choose...
How accurate do you think you are at predicting the attitudes of people at your university?	Please choose...
How well do you think you can predict the feeling and emotions of people at your university?	Please choose...
How much do you think you can empathise (share) the way that people at your university think about themselves?	Please choose...
How well do you think you know people at your university?	Please choose...

Appendix O. Consent form (Study 2).

University research study

Send
121  
people
Tweet

Are you about to start your first year of a new course or degree at a UK university (i.e. 'a fresher' doing a foundation, undergraduate or postgraduate course)?

If your answer is yes, please take part in this questionnaire study.

*This questionnaire study explores what new students are doing just before starting university. Questions will be asked about worries that you have about university and whether you have interacted with anybody from your university already.*

The questionnaire should take 5-10 minutes to complete.

**Is there anything else I should know?**

By taking part in the study, you should know that:

This study forms part of a student's PhD research, and has received full ethical approval by the University of Bath Psychology Ethics Committee (ID: 11-957).

Your results are entirely anonymous and confidential. You cannot be identified from your results.

Completing the questionnaire is entirely voluntary. You can withdraw at any point during the completion of the questionnaire by closing your web browser.

Once completed, you will be unable to receive individual feedback or withdraw your results simply because your data is entirely anonymous. You can receive an overview of the study's findings if you wish.

To take part in the study, you must:

Be aged 16 years or older

Be starting your first year of a new course/degree at a UK university in August, September or October 2011.

If you have any questions, please contact James Doodson ([j.t.doodson@bath.ac.uk](mailto:j.t.doodson@bath.ac.uk)) who is a PhD student.

**I am willing to take part in the study**

If you are willing to take part in this study, please indicate this using the options below and then click 'Next'. If you do not agree, close your internet browser.


☐ I consent to take part in this study  
☐ I do not consent to take part in this study


You will be unable to continue if you have not chosen to option to given your consent to take part in the study




*Appendix P. Debrief and support information (Study 2).*

**University research study**



 120  
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Your participation in this study is complete. Thank you for giving up your time - your participation is really appreciated :)

If you are happy to do so, please use the 'Like/Send' and 'Tweet' buttons to let others know about the study as I'm trying to get as many participants that I can. You can also give people this direct link:  
<http://go.bath.ac.uk/uni>

The more, the merrier :)

As the questionnaire is finished, you can now close your browser or navigate to another website. If you are interested, the following provides information about the questionnaire that you have just completed.

What is this research examining?

You have taken part in a research study that examines whether and how you might use social network sites to find out about other people at your university that you are about to attend.

Anecdotally, it has been suggested that some first year university students use social networking sites (e.g. Facebook) to find out about others at their university such as people who will be on their course and in their flat. It has been theorised that a variety of different strategies may be used to find out about other people at university (including 'passive' watching of people at your university, 'interacting' with people at your university).

Your anonymous, confidential response to the questionnaire will be grouped with data from others who are about to go to university in the UK. The overall set of responses will be examined to determine:

- The extent to which students are using social network sites to finding others at their university
- The strategies being used to find others at university
- Whether the practice has any link to natural, common worries about university

**How can I find out more about the study or the general research area?**

If you are interested in the topic of student use of social networking sites in the university experience, there are a list of relevant readings [here](#)

If you are interested in finding out any more about any part of this research then do get in contact the researcher, [James Doodson \(j.t.doodson@bath.ac.uk\)](mailto:j.t.doodson@bath.ac.uk) (PhD researcher). As the data is anonymous and confidential, individual feedback on your data cannot be given as there is no way to identify which data is your data.

If you would like a copy of the general results or have any other comments then contact [James Doodson \(j.t.doodson@bath.ac.uk\)](mailto:j.t.doodson@bath.ac.uk)

**Post-study support**

Hopefully, the study did not cause you any stress or concern. However, it is natural to be nervous about going to university. If you do wish to speak to somebody about any concerns that you may have then there are a wide

range of services available.

Firstly, your university and student's union will offer a range of free services that you can get in contact with when you first arrive at university and throughout your time at university - you are encouraged to familiarize yourself with these services and make use of these services. The university services are likely advertised during the induction week or on the university and student union websites. Details of what your university might offer are available [here](#). Also, details of the specific counselling service for your university may be available [here](#) or [here](#)

More generally, there are a number of very reputable sources that you can get in contact with if you have any concerns right now. A number of these sources are listed below, and you are encouraged to get in contact with these groups if you have any worries or concerns that you think would be good to discuss.

*Face-to-face, email or telephone*

UK Samaritans: 08457 90 90 90 (open 24 hours); email: [jo@samaritans.org](mailto:jo@samaritans.org); website: <http://www.samaritans.org/>

University Nightline Services (find your local nightline contact number): <http://www.nightline.ac.uk/>

International Befrienders. Find a local contact for your country via the website: <http://www.befrienders.org/support/index.asp?PageURL=index.php>

UK SupportLine: telephone: 01708 765200 (hours vary so ring for details) email: [info@supportline.org.uk](mailto:info@supportline.org.uk); website: <http://www.supportline.org.uk/>

CALM: telephone: 0800 58 58 58 (translation facilities available on request). Phone lines open 4 days a week (Saturday to Tuesday), 5pm to midnight  
<http://www.thecalmzone.net/talk/our-helpline/>

*Online communities*

<http://www.thestudentroom.co.uk/> (particularly visit the Health and Relationships page) – advice webpage and forums designed for students, and dealing with common student concerns.

<http://www.healthyplace.com/> - A community of people providing mental health information, support and the opportunity to share experiences helpful to others. Information on psychological and psychiatric medication from both a consumer and expert point of view. Active chatrooms, hosted support groups, people who keep online journals, diaries, mental health news, mental health videos, online documentary films, mental health radio and more

*Online guidance websites*

[NHS Guidance on dealing with stress whilst starting university](#) (includes a video)

[MIND information on stress at university](#)

[The Site guide to dealing with stress](#)

[Students Against Depression](#)

[Student Counselling](#)



Appendix Q. Demographics questionnaire (Study 3).

### University research study 2012/2013

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**Demographics**

**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

Please answer the following questions which are intended to find out a little bit more about you.

**Are you about to start your first year of a new degree or course at university (i.e. a fresher)?**

☐ Yes ☐ No

**What is your gender?**  
**Choose one of the following answers**

☐ Female  
☐ Male  
☐ No answer

**Age (you must be aged 16 years or older to take part in this study)**

years

*Only numbers may be entered in this field*

**What university are you about to attend/enrol/matriculate?**  
**Type the first few letters of your university. If your university does not appear then please type the whole name.**

**What is the name of your forthcoming degree/course?**

**What type of degree/course are you about to study?**

- ☐ Undergraduate (e.g. BSc)
- ☐ Postgraduate (i.e. a taught Masters)
- ☐ Postgraduate (i.e. a research PhD)
- ☐ Other (please specify)

**Is this your first degree/course at that university?**  
**Choose one of the following answers**

- ☐ Yes
- ☐ No
- ☐ No answer

**Where country are you from? (choose most appropriate)**  
**Choose one of the following answers**

- ☐ United Kingdom
- ☐ Europe
- ☐ Outside of Europe
- ☐ No answer

**Roughly, what date will you be starting university?**  
**The date does not need to be exact. If you do not know then leave the answer blank.**

*Format: dd/mm/yyyy*

<< Previous

Next >>

Exit and clear survey

*Appendix R.* Trait anxiety questionnaire (Study 3; Ree, French, MacLeod & Locke, 2008).

University research study 2012/2013

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**STICSA**

If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.

This is the last page! Phew :)

Below are a list of statements that can be used to describe how people feel.

Rate the extent to which each statement indicates how often, in general, the statement is true of you (generally, not necessarily right now).

**In general...**

My heart beats fast.	Please choose... ▴ ▾
My muscles are tense.	Please choose... ▴ ▾
I feel agonized over my problems.	Please choose... ▴ ▾
I think that others won't approve of me.	Please choose... ▴ ▾
I feel like I'm missing out on things because I can't make up my mind soon enough.	Please choose... ▴ ▾
I feel dizzy.	Please choose... ▴ ▾
My muscles feel weak.	Please choose... ▴ ▾
I feel trembly and shaky.	Please choose... ▴ ▾
I picture some future misfortune.	Please choose... ▴ ▾
I can't get some thought out of my mind.	Please choose... ▴ ▾
I have trouble remembering things.	Please choose... ▴ ▾
My face feels hot.	Please choose... ▴ ▾
I think that the worst will happen.	Please choose... ▴ ▾

My arms and legs feel stiff.	Please choose... ▾
My throat feels dry.	Please choose... ▾
I keep busy to avoid uncomfortable thoughts.	Please choose... ▾
I cannot concentrate without irrelevant thoughts intruding.	Please choose... ▾
My breathing is fast and shallow.	Please choose... ▾
I worry that I cannot control my thoughts as well as I would like to.	Please choose... ▾
I have butterflies in the stomach.	Please choose... ▾
My palms feel clammy.	Please choose... ▾
<div>&lt;&lt; Previous</div> <div>Next &gt;&gt;</div> <div>Exit and clear survey</div>	

*Appendix S.* Intensity of student worries about university questionnaire (Study 3; Brooks, 2005).

### University research study 2012/2013

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#### Worries

**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

As mentioned, worries are a common and completely natural part of the weeks prior to starting a new university course or degree.

Below are some of the most common concerns of university students. Rate the degree to which each issue worries you by selecting the appropriate option from each drop-down box (0 = Not at all concerned about the issue; 4 = extremely concerned about the issue)

I will not have enough money to pay for my education

Please choose...

I will not be able manage my time for studying

Please choose...

I will have difficulty making friends

Please choose...

I will have difficulty in relationships

Please choose...

I will not be smart enough

Please choose...

I will become homesick

Please choose...

I will not feel safe where I am living

Please choose...

I will not do well in my classes

Please choose...

I will not get enough sleep

Please choose...

I worry I did

not pick the right university	Please choose...
I am worried that I might abuse alcohol	Please choose...
I will have difficulty finding a major I like	Please choose...
I will have a hard time fitting in socially	Please choose...
I will have trouble getting along with my housemates	Please choose...
I will feel inferior to others	Please choose...
I will have a hard time leaving my family behind	Please choose...
I will have a hard time keeping up with all of my academic work	Please choose...
I will have a hard time leaving my friends behind	Please choose...
It will be hard for me to find a new peer group that I can connect with	Please choose...
I will have a hard time eating properly	Please choose...
I will become lonely	Please choose...
I will have difficulty balancing studying and extracurricular activities	Please choose...
I will be have	

trouble managing university- related stress	<div>Please choose...<div></div></div>
I will have difficulty balancing work and studying	<div>Please choose...<div></div></div>
I will become sad or depressed	<div>Please choose...<div></div></div>
<div>&lt;&lt; Previous</div> <div>Next &gt;&gt;</div> <div>Exit and clear survey</div>	



*Appendix T.* Questionnaire asking about the groups of people that students encounter on social network sites (Study 3).

### University research study 2012/2013

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#### People

**What (if any) Social Network Sites do you use?**  
Check any that apply

- ☐ Facebook
- ☐ Twitter
- ☐ MySpace
- ☐ Google+
- ☐ Bebo
- ☐ LinkedIn
- ☐ YouGo

Other (specify as many as you wish)

**Some people use Social Network Sites like Facebook and Twitter to meet, view or find out more about other people at their university (e.g. their new housemates, coursemates). Have you done this at all?**

**This may have involved looking at their profile pictures or their photos, briefly chatting to them online, briefly seeing their faces or names in a Facebook Group, etc.**

**Choose one of the following answers**

☒ Yes  
☐ No  
☐ I do not use social networking sites

**Have you met, viewed, or otherwise interacted with any of the following via a Social Network Site (i.e. via Facebook, Twitter).**

**This may have involved looking at their profile pictures or their photos, briefly chatting to them online, briefly seeing their faces or names in a Facebook Group, etc.**

**Check any that apply**

- ☐ Housemates
- ☐ Coursemates



- ☐ Sportsmates
- ☐ Students in higher years (i.e. second and third years)
- ☐ Staff (i.e. lecturers)
- Other:

<< Previous

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Exit and clear survey

*Appendix U.* Questionnaire asking about students' encounters with others on social network sites (Study 3).

### University research study 2012/2013

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**TechniquesHousemates**

**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

Consider the people from your university that you have already found or interacted with using a social network site.

How often have you used each of the below techniques to find out about those people from your university?

You can add other techniques by clicking the + (add/plus) button at the bottom.

If a technique is not possible using your social network site, choose the 'Not possible...' option from the list.

	How often did you use the following techniques with people at your new university?	Rating
1)	Read messages that they posted in an area that anybody else can see (i.e. in a group, event, hashtag)	<div>Please choose...</div>
2)	Looked at their profile pictures or buddy pictures	<div>Please choose...</div>
3)	Looked at photos in which they are tagged	<div>Please choose...</div>
4)	Read comments that they have written on their photos	<div>Please choose...</div>
5)	Looked at content that they have shared on their own profile page or account (i.e. status updates, wall posts, shared links)	<div>Please choose...</div>
6)	Looked at their listed preferences (e.g. their 'likes', hobbies, activities, 'About me' sections)	<div>Please choose...</div>
7)	Looked at a list of your mutual friends	<div>Please choose...</div>
8)	Sent a message to one of their friends asking about them (only online)	<div>Please choose...</div>
9)	Spoken offline (face-to-face/phone) to one of their friends about them	<div>Please choose...</div>
10)	Looked at public messages or other content that their friends have sent or written about them	<div>Please choose...</div>
11)	Asked them questions about themselves in an area where other people can see what you've asked (i.e. in a group, event, hashtag)	<div>Please choose...</div>
12)	Asked them questions about themselves in a private area (i.e. private/direct message or private chat)	<div>Please choose...</div>
...	Arranged to meet face-to-face or call each other via	<div></div>

13)	telephone before university starts	Please choose...
14)	You told them things about yourself first, and they replied by telling you things about themselves without you asking	Please choose...
15)	Searched for information about them using the social network site's search (i.e. Facebook Search)	Please choose...
16)	Searched for information about them using a general social engine (i.e. Google; Bing; Yahoo)	Please choose...
17)	Searched for and read messages/content that they have posted on a different social network	Please choose...

[+]

*Appendix V.* Confidence in impressions questionnaire (Study 3; Clatterbuck, 1979).

### University research study 2012/2013

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#### CLUES7 Housemates

**If you wish to go back a page, use the 'Previous' button at the bottom of the page. Do not click your browser's 'back/previous' (near the address bar) as this will completely delete your questionnaire.**

Think generally about the people you will be *living with at university* (i.e. your housemates)

Now, rate each of statements below using a scale from zero (not at all/a total guess) to ten (completely certain).

How well do you think you understand your new housemates?

Please choose...

How confident are you of your general ability to predict how your new housemates will behave?

Please choose...

How certain are you about how well your new housemates like you?

Please choose...

How accurate do you think you are at predicting the things your new housemates find important?

Please choose...

How accurate do you think you are at predicting the attitudes of your new housemates?

Please choose...

How well do you think you can predict the feeling and emotions of your new housemates?

Please choose...

How much do you think you can empathise (share) the way that your new housemates think about themselves?

Please choose...

How well do you think you know your new housemates?

Please choose...

Appendix W. Consent form (Study 3)

### University research study 2012/2013

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Tweet

**Are you about to start your first year at a UK university (i.e. 'a fresher')?**

**If your answer is yes, please take part in this questionnaire study.**

*This questionnaire study explores what incoming undergraduates are doing just before starting university. Questions will be asked about worries that you have about university and whether you have interacted with anybody from your university already.*

The questionnaire should take 5-7 minutes to complete.

**Is there anything else I should know?**

By taking part in the study, you should know that:

This study has received full ethical approval by the University of Bath Psychology Ethics Committee (ID: xx-xxx).

Your results are entirely anonymous and confidential. You cannot be identified from your results, and we will not ask for your name or email address.

Completing the questionnaire is entirely voluntary. You can withdraw at any point during the completion of the questionnaire by closing your web browser.

Once completed, you will be unable to receive individual feedback or withdraw your results simply because your data is entirely anonymous. You can receive an overview of the study's findings if you wish.

To take part in the study, you must:

Be aged 16 years or older

Be starting your first year of a new course/degree at a UK university in August, September or October 2012.

If you have any questions, please contact **James Doodson** ([j.t.doodson@bath.ac.uk](mailto:j.t.doodson@bath.ac.uk))

**I am willing to take part in the study**

If you are willing to take part in this study, please indicate this using the options below then click 'Next'. If you do not agree, close your internet browser.

☐ I consent to take part in this study

☐ I do not consent to take part in this study

You will be unable to continue if you have not chosen to option to given your consent to take part in the study

Next >>

Exit and clear survey



*Appendix X. Debrief and support information (Study 3).*

### University research study 2012/2013

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Tweet

Your participation in this study is complete. Thank you for giving up your time - your participation is really appreciated :)

If you are happy to do so, please use the 'Like/Send' and 'Tweet' buttons to let others know about the study as I'm trying to get as many participants that I can. You can also give people this direct link: <http://go.bath.ac.uk/uni>

The more, the merrier :)

As the questionnaire is finished, you can now close your browser or navigate to another website. If you are interested, the following provides information about the questionnaire that you have just completed.

What is this research examining?

You have taken part in a research study that examines whether and how you might use social network sites to find out about other people at your university that you are about to attend.

Anecdotally, it has been suggested that some first year university students use social networking sites (e.g. Facebook) to find out about others at their university such as people who will be on their course and in their flat. It has been theorised that a variety of different strategies may be used to find out about other people at university (including 'passive' watching of people at your university, 'interacting' with people at your university).

Your anonymous, confidential response to the questionnaire will be grouped with data from others who are about to go to university in the UK. The overall set of responses will be examined to determine:

- The extent to which students are using social network sites to finding others at their university
- The strategies being used to find others at university
- Whether the practice has any link to natural, common worries about university

**How can I find out more about the study or the general research area?**

If you are interested in the topic of student use of social networking sites in the university experience, there are a list of relevant readings [here](#)

If you are interested in finding out any more about any part of this research then do get in contact the researcher, [James Doodson \(j.t.doodson@bath.ac.uk\)](mailto:j.t.doodson@bath.ac.uk) (PhD researcher). As the data is anonymous and confidential, individual feedback on your data cannot be given as there is no way to identify which data is your

data.

If you would like a copy of the general results or have any other comments then contact **James Doodson** ([j.t.doodson@bath.ac.uk](mailto:j.t.doodson@bath.ac.uk))

### **Post-study support**

Hopefully, the study did not cause you any stress or concern. However, it is natural to be nervous about going to university. If you do wish to speak to somebody about any concerns that you may have then there are a wide range of services available.

Firstly, your university and student's union will offer a range of free services that you can get in contact with when you first arrive at university and throughout your time at university - you are encouraged to familiarize yourself with these services and make use of these services. The university services are likely advertised during the induction week or on the university and student union websites. Details of what your university might offer are available [here](#). Also, details of the specific counselling service for your university may be available [here](#) or [here](#)

More generally, there are a number of very reputable sources that you can get in contact with if you have any concerns right now. A number of these sources are listed below, and you are encouraged to get in contact with these groups if you have any worries or concerns that you think would be good to discuss.

#### *Face-to-face, email or telephone*

UK Samaritans: 08457 90 90 90 (open 24 hours); email: [jo@samaritans.org](mailto:jo@samaritans.org); website: <http://www.samaritans.org/>

University Nightline Services (find your local nightline contact number): <http://www.nightline.ac.uk/>

International Befrienders. Find a local contact for your country via the website: <http://www.befrienders.org/support/index.asp?PageURL=index.php>

UK SupportLine: telephone: 01708 765200 (hours vary so ring for details) email: [info@supportline.org.uk](mailto:info@supportline.org.uk); website: <http://www.supportline.org.uk/>

CALM: telephone: 0800 58 58 58 (translation facilities available on request). Phone lines open 4 days a week (Saturday to Tuesday), 5pm to midnight  
<http://www.thecalmzone.net/talk/our-helpline/>

#### **Online communities**

<http://www.thestudentroom.co.uk/> (particularly visit the Health and Relationships page) – advice webpage and forums designed for students, and dealing with common student concerns.

<http://www.healthyplace.com/> - A community of people providing mental health information, support and the opportunity to share experiences helpful to others. Information on psychological and psychiatric medication from both a consumer and expert point of view. Active chatrooms, hosted support groups, people who keep online journals, diaries, mental health news, mental health videos, online



documentary films, mental health radio and more

*Online guidance websites*

NHS Guidance on dealing with stress whilst starting university  
(includes a video)

MIND information on stress at university

The Site guide to dealing with stress

Students Against Depression

Student Counselling